The Dissertation Committee for April Marie Sutton Certifies that this is the approved version of the following dissertation:

Training for Local Labor in a Global Economy: Local Labor Markets, High School Course Offerings, and Males' and Females' Education and Early Labor Market Outcomes

Committee:

Chandra Muller, Supervisor

Jennifer Glass

Ken-Hou Lin

R. Kelly Raley

Catherine Riegle-Crumb

Training for Local Labor in a Global Economy: Local Labor Markets, High School Course Offerings, and Males' and Females' Education and Early Labor Market Outcomes

by

April Marie Sutton, B.S.; M.A.

Dissertation

Presented to the Faculty of the Graduate School of

The University of Texas at Austin

in Partial Fulfillment

of the Requirements

for the Degree of

Doctor of Philosophy

The University of Texas at Austin

May 2015

Dedication

For June Olive King

Acknowledgements

I can imagine no better place to be trained as a sociologist than the Department of Sociology and Population Research Center at the University of Texas. My advisor, Chandra Muller, deserves my deepest gratitude. She has generously shared with me the craft she has perfected, from analyzing hundreds of cross-tabs with me as a first-year graduate student to spending innumerable hours working with me on drafts of articles. She pushes me intellectually, supports me academically and personally, and inspires my confidence as a sociologist. Chandra's mentorship is unmatched, and I am truly honored to call her my advisor.

I am also grateful to many other talented and supportive scholars who have fostered my intellectual and professional development. I have been privileged to work with and learn from Jennifer Glass over the last few years. Her mentorship and excellent scholarship deepened my interests in gender and social stratification and also helped me remember my love for sociological inquiries beyond these research subfields. Amy Langenkamp has also had an enduring influence on my graduate school career as both a mentor and co-author. I owe her for teaching me the ropes and generously collaborating with me on papers inspired by her own dissertation research on school transitions.

Every paper I have written and presentation I have given has benefitted from Catherine Riegle-Crumb's sharp insights. I am also thankful for her social mentorship; she always made me feel welcome to hang out with the sociology of education crew at every ASA. Kelly Raley has made a lasting impact on my research career thus far. Her substantive, methodological, and professional advice is always clear and spot-on, and I cannot imagine having presented a paper at a conference without her vital feedback. I also want to thank Ken-Hou Lin for offering to read and provide feedback on my research when he first began his assistant professorship at UT. His suggestions have greatly improved this dissertation.

Scholars outside of UT have also made a real difference in my graduate school career. In particular, I thank Katy Schiller for patiently and expertly teaching me a variety of methodological tools. Her kindness and teaching prowess are truly inspirational. I also appreciate Eric Grodsky's long-distance mentorship and encouragement to pursue my own sociological interests. And I cannot thank him enough for taking the time to respond with thorough responses to my e-mails on methodological issues. Lastly, several professors at Vanderbilt University are responsible for sparking my sociological imagination, providing me with first-rate training, and encouraging me to enter a PhD program in sociology. In particular, I would like to express my appreciation for my undergraduate advisor, Richard Pitt, Tony Brown, Holly McCammon, and Karen Campbell.

I could not be more grateful for my friends who have supported me both academically and personally during my time at UT. In particular, I am honored to call Melissa Humphries a colleague and friend. I could not imagine having written a single article without her substantive and methodological advice. The magnitude of her encouragement, patience, and compassion she has offered me over the years is unparalleled. I am also indebted to Dara Shifrer—I am lucky to call her a mentor, co-author, and friend. In addition, this dissertation would not have been possible without Amanda Bosky, my co-author on an article that developed into my second and third analytic chapters. Although I initially mentored Amanda as an incoming graduate student, I quickly began to learn as much from her as she did from me. This dissertation benefitted greatly from her substantive insights and methodological skills. I look forward to our continued friendship and collaborations on the role of place in shaping social inequality—a topic we both hold near to our hearts. I would also like to thank the many scholars I've met at UT who have each enriched my research career and personal life, including Neveen Shafeek Amin, Jennifer March Augustine, Travis Beaver, Sarah Blanchard, Jamie Carroll, Jeff Denning, Molly Dondero, Yujin Kim, Janet Kuo, Matt LaFevor, Chelsea Moore, Jennifer Karas Montez, Aida Ramos, Anna Strassmann Mueller, Eve Pattison, Jenny Pearson, Kate Prickett, Josh Rudow, Chuck Stokes, Esther Sullivan, Maggie Tate, and Jeremy Uecker.

I am also grateful for the intellectual insights, motivation, and support from my friends outside of academia. Jamie Beck and Jessica Lyerla gave me the intellectual confidence I needed to pursue an academic career as an undergraduate at Vanderbilt even before they became my best friends. I cannot imagine the past four years in Austin without my childhood friend Laura Ritz, who has kept me grounded outside of the ivory tower. I also want to thank Brian Spears for all the delights over the last few years. Finally, my choice to pursue a PhD in sociology and to focus on educational, gender, and social inequalities across places was first inspired by my classmates and very first friends in Homerville, a “blue-collar community” in rural South Georgia where I was raised. It is my hope that this dissertation helps spotlight the schools and students within similar communities that contemporary academic research has rendered largely invisible.

I want to thank my mother, father, Lisa, and Berry for believing in me, supporting me in all capacities, and teaching me to never lose sight of what is most important in life. Finally, no words can capture the gratitude I have for my Nana. Her trajectory to university in London where she surely would have flourished was derailed by the onset of war, during which she fell in love with an American soldier from the rural South. Yet Nana sustained a lifelong intellectual curiosity that inspired my own. She spent countless hours with me afterschool—helping me with my homework, sipping afternoon tea, and patiently teaching me piano. Far more important than providing me with valuable sources of social and cultural capital, she was my source of stability and lifeline throughout childhood and adolescence. Her schooling was truncated, but she enabled me to pursue and obtain the highest possible level of education. I dedicate this dissertation to my Nana, June Olive King.

This research was supported by grant HRD 1348527 of the National Science Foundation and by grant 2012-10-27 of the Alfred P. Sloan Foundation. This research was also supported by grants 5 R24 HD042849 and 5 T32 HD007081, awarded to the Population Research Center at The University of Texas at Austin by the Eunice Kennedy Shriver National Institute of Health and Child Development. Opinions reflect those of the authors and do not necessarily reflect those of the granting agencies.

Training for Local Labor in a Global Economy: Local Labor Markets, High School Course Offerings, and Males' and Females' Education and Early Labor Market Outcomes

April Marie Sutton, Ph.D.

The University of Texas at Austin, 2015

Supervisor: Chandra Muller

Debates about the best type of high school training for labor market success have heightened as the nation strives to recover from the Great Recession and maintain its position in the global economy. Some scholars and policymakers call for increased academic intensification of high school curricula while others prescribe a renewed emphasis on vocational coursework that prepares students for sub-baccalaureate jobs. Both camps tend to ignore the local nature of schools and the uneven distribution of sub-baccalaureate jobs across local economies. The debate has also been gender-neutral even though well-paying sub-baccalaureate work lies primarily in male-dominated, blue-collar occupations.

In this dissertation, I highlight these local economic and gendered dimensions of the high school training debate that have been neglected in academic research and policy discussions. Using the Educational Longitudinal Study of 2002 (ELS:2002), a nationally representative sample of high school sophomores, this dissertation investigates the relationships among local labor markets, high school course offerings, and males' and females' education and early labor market outcomes. The first analytic chapter finds that students attending high schools in local labor markets with higher concentrations of sub-

baccalaureate jobs take greater numbers of career and technical education (CTE) courses and are less likely to take advanced academic math courses than students in local labor markets with lower concentrations of these jobs. Their course-taking patterns are largely a function of their schools offering greater numbers of CTE courses and providing a less rigorous academic curriculum. High-achievers face the greatest advanced math course-taking penalties.

The remainder of this dissertation examines the gendered consequences of linking high school training to local jobs in places that rely more heavily on blue-collar work. I find that a greater emphasis on blue-collar courses and weaker college-preparatory curriculum in schools in these communities do not appear to harm the labor market outcomes of men in early adulthood. However, results suggest severe postsecondary and labor market penalties for young women. Overall, this dissertation highlights a local economic dimension of (gendered) opportunities for educational and occupational success. It points to schools—as gatekeepers to skills training and embedded within communities—as an important force in this stratification process.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

Motivation

The link between schools and the labor force is key to the functioning of every modern society and is a primary mechanism in the reproduction and disruption of social stratification. Depending on the economic and socio-cultural goals of the United States at the time, educational policies since the late 19th century have oscillated between emphasizing vocational skills and promoting a rigorous academic curriculum. Debates about the type and level of education needed to succeed in the new economy have recently heightened as the nation strives to produce a globally competitive workforce and regain economic vitality after the Great Recession.

Although schools offer, and students take, more academically rigorous courses than ever before (Domina 2006), some scholars and policymakers call for further curricular intensification. They argue that advanced high school coursework is imperative to prepare students for a bachelor's degree (Adelman 2006) and to develop the analytic skills increasingly required by most good jobs in the knowledge economy. The college-wage premium and the growing chasm between "good" and "bad" jobs (Kalleberg 2013) support these claims (e.g., Carnevale and Desrochers 2002, Hout 2012; Moretti 2013). From a social equity perspective, these scholars assert that increasing access to academically rigorous coursework can reduce status-group inequalities in education (Gamoran and Hannigan 2000; Adelman 2006). Research adopting a skill-biased technological change argument warns that income inequality will continue to rise unless the U.S. commits to training a more highly educated workforce (Goldin and Katz 2010).

Alongside proponents of further academic curricular intensification are scholars and policymakers who advocate for a re-emphasis on career and technical education (CTE) coursework to train students for specific skills demanded by sub-baccalaureate jobs. They challenge the "college for all" prescription because they are concerned that high schools offer inadequate training for mid-skill sub-baccalaureate jobs. In addition, this camp points to the fifty-percent of college enrollees who do not earn a degree, but are left with the burden of college loans and lack the specialized training required for better paying sub-baccalaureate jobs (Symonds, Schwartz and Ferguson 2011). Blue-collar jobs have been touted as exemplars of sub-baccalaureate "good" jobs, with President Obama's incendiary comparison between the earnings of skilled manufacturing workers and art history degree holders representing a recent example at the highest-level.

Common to each camp has been the tendency to overlook important dimensions of high school training for jobs in the new economy that have implications for education and labor force stratification. First, this debate has emphasized the type of training that will best prepare students to meet the job demands of the national economy, but it has paid little attention to the local nature of jobs and schools. This national focus is evident from the *National Defense Education Act* (1958) to the policy report *Rising Above the Gathering Storm* (2007). Most sociological research on the topic has been consistent with this larger societal focus; in the 1960s, scholars moved from a conceptualization of schools as intimately tied to the communities they served to schools as agents of social reproduction within the broader occupational division of labor to meet national needs (Arum 2000). However, there is a spatial division of labor in the kinds of jobs driving local economies that is more uneven today than ever. This "new geography of jobs" (Moretti 2013) translates into different education and skill levels needed for employment across communities. Historically, schools have offered coursework related to local labor markets (Rury 1991), and some scholars suggest that tight couplings between local economies and school curricula may persist (Mickelson 1999; Ray and Mickelson 1990). Indeed, alongside initiatives like the *Common Core State Standards* that standardize academic curricula across schools is a countervailing wave of new state educational policies aimed at reviving specialized technical training, especially in areas where blue-collar jobs persist.

If so, the character of high school training may be related to the education and skill levels associated with *local* jobs. The human capital demands of the local labor market in communities where a greater proportion of jobs require a bachelor's degree may coincide with those many scholars and government task forces argue are imperative to thrive in today's economy, keep pace with rapidly-changing technology, and weather labor market vicissitudes (Carnevale and Desrochers 2002; Fernandez 2001; Fischer and Hout 2006; Goldin and Katz 2009; Hanushek, Woessmann and Zhang 2011; Hout 2012; National Academy of Sciences 2007). In other communities, the skills and education required to meet labor market demands may be more in line with the career and technical education focus of those who argue against a curriculum solely influenced by the college-for-all mandate.

In addition to neglecting the local nature of schools and the diversity of jobs across communities, discourse surrounding the best type of high school training to prepare all students for labor market success has ignored the gendered character of sub-baccalaureate jobs. Whereas jobs that require a four-year degree or higher have become increasingly integrated, sub-baccalaureate jobs remain highly sex-segregated. This is especially true among blue-collar occupations—the few remaining, good-paying sub-baccalaureate jobs (Carnevale et al. 2011). Thus, while academically rigorous high school training aimed to prepare all students for four-year colleges and professional jobs may benefit both men and women, high school training related to blue-collar jobs may only benefit men, if it benefits them at all. Because blue-collar jobs are unevenly distributed across place, the potential link between high school training and local jobs may lead to gender-divergent education and labor market outcomes that shape unique patterns of gender inequality in communities where blue-collar jobs persist.

Current Study

This dissertation investigates these local economic and gendered dimensions of the high school training debate that have been neglected in academic research and policy discussions. I focus specifically on how an economic characteristic of communities—the kinds of jobs that employ a large share of its workers—structures students' education and labor force outcomes through shaping their access to academic and vocational high school course offerings. It will spotlight the gendered educational and early labor market consequences of linking high school training to highly sex-segregated jobs in the context of blue-collar communities.

I will first examine whether schools in local labor markets that rely more heavily on sub-baccalaureate jobs offer courses more aligned with CTE training and provide a less rigorous academic curriculum. It is possible that communities with higher shares of workers in sub-baccalaureate jobs invest in both CTE course offerings without sacrificing the academic rigor of their academic curriculum. If so, schools in these communities may graduate students that are both career- *and* college-ready. However, research that I discuss in Chapter 3 suggests that this may not be the case; schools in these labor markets have fewer resources to offer academically challenging coursework, and case studies suggest that schools may offer coursework related to local jobs even independent of financial resources. A relationship between school curricula and local jobs would reveal a greater complexity to larger policy debates that privilege national economic demands. Most importantly, the interplay between high school course offerings and local jobs may result in students having uneven access to coursework across place. These relationships would further challenge the idea of a meritocratic education system and reveal a connection between high school training and a local economic dimension of inequality. This linkage has been largely obscured by research privileging national-level economic demands and broader patterns of status-group inequality.

The remainder of the dissertation examines gender stratification as a function of place and investigates how schools and communities interact to shape gender inequality in the context of highly gendered local labor market opportunities. Specifically, I look at the potential relationship between high school curricula and jobs in blue-collar communities and ask whether high school training in blue-collar communities (re)produces gender stratification in high school, college, and labor force outcomes. Research investigating gender disparities in education outcomes has paid little attention to local labor market conditions, with only a few exceptions (Riegle-Crumb and Moore 2014; Werum 2002). Furthermore, although studies have considered the role of local economic opportunities in shaping between- and within- gender inequalities in labor market outcomes (Cotter et al. 1998; Gauchat, Kelly and Wallace 2012; McCall 2000; McCall 2001), this research has not considered how the high school educational experiences of young men and women across these communities may foreshadow gender inequality in the labor force. Below, I further discuss the reasoning behind examining the gendered consequences of high school training in blue-collar communities.

The Case of Blue-Collar Communities

The decision to focus on the educational and labor force outcomes of men and women who attended high school and transitioned to work or college in blue-collar communities draws on three main motivations. First, I expect the relationship between school course offerings and local jobs to be strongest within blue-collar communities. Blue-collar jobs are among the only sub-baccalaureate jobs that require specialized skills (Carnevale et al. 2011), and, historically, the linkage between high school training and local industry was tightest in the Northeastern urban industrial centers—where blue-collar jobs dominated the local economy. This emphasis on local jobs resulted in early differences in academic course offerings and course-taking across regional economies (Rury 1991). Furthermore, the sub-baccalaureate labor market is largely local, with employers searching for sub-baccalaureate workers locally and having relationships with local educational providers (Grubb 1999).

Second, if schools in blue-collar communities offer greater numbers of blue-collar related courses and fewer advanced academic courses relative to schools in non-blue-collar communities, this gendered curriculum may result in significant educational and labor market penalties for women because the majority of today's sub-baccalaureate jobs that pay good wages are male-dominated (Carnevale et al. 2011). In addition, the returns to education are higher for women than for men (DiPrete and Buchmann 2006), with striking wage gaps existing among women with and without a college degree (McCall 2000, 2001). Furthermore, previous research indicates that women have few opportunities to obtain training for employment in blue-collar jobs, and women who have managed to enter blue-collar jobs have been primarily relegated to the most "invisible" (Rosen 1987) and "alienating" jobs (Blauner 1964) within the industry. If the promise of good-paying blue-collar work falls short for women, a curriculum that fosters a school-to-work link for some young men but does not prepare women for four-year college will likely result in gendered tradeoffs in the labor market.

Lastly, this dissertation's focus on the gendered consequences of linking high school training with local jobs presents a unique opportunity to reduce some of the selection bias concerns inherent in studies examining the effects of vocational and academic course-taking on students' postsecondary and labor market outcomes. Because students select into coursework on unobservable characteristics, examining whether blue-collar or college-preparatory math course-taking, for example, shape students' post-high school outcomes is problematic for causal inference. This study focuses on how school curricular opportunities across local labor markets shape students' course-taking. Since students do not choose the local labor market in which they attend high school or the course options available at their schools, investigating students whose course-taking is a function of school course offerings may provide greater leverage in understanding the postsecondary and labor market consequences of CTE and academic course-taking.

A gender analysis of the link between blue-collar high school training and blue-collar jobs is timely and needed given recent political discussions and legislative initiatives promoting this coupling. Some scholars, finding greater gender inequality in wages in manufacturing areas, label these kinds of initiatives as "nostalgic" (McCall 1998) and misplaced in our expanding knowledge-based economy (Moretti 2013). However, policy makers, businesses, and other scholars point to the growing number of often well-paying, blue-collar jobs that must be filled with mid-skill workers. Both legislators and scholars have argued that students are not acquiring the specialized technical training in high school and/or community college that sub-baccalaureate jobs demand. I examine whether females' education and labor market outcomes suffer from a link between high school training related to local blue-collar jobs within this current policy context and against the background of national trends in which women are exceeding men in educational attainment (DiPrete and Buchmann 2013). A gendered curriculum oriented towards blue-collar training without a strong college-preparatory focus may result in divergent education outcomes for men and women. If this is the case, women who receive high school training in blue-collar communities may face more disadvantages in the labor force.

Research Aims and Dissertation Outline

This dissertation uses the Education Longitudinal Study of 2002 (ELS:2002), a nationally representative dataset, to investigate whether and how the occupational structure of the local labor market shapes males' and females' high school training, college, and labor market outcomes. The research aims that this dissertation explores are outlined below. Chapter 3 investigates the first two aims, Chapter 5 examines the third aim, and the fourth aim is explored in Chapter 6.

> Research Aim 1: Investigate whether schools in communities with higher concentrations of workers in sub-baccalaureate jobs devote a larger share of their curricula to CTE courses and a smaller share to advanced academic coursework.
>
> Research Aim 2a: Investigate whether students in communities with higher concentrations of workers in sub-baccalaureate jobs take greater numbers of CTE courses and have lower odds of taking advanced academic math.
>
> Research Aim 2b: Examine whether unequal access to course offerings explains any observed relationships between the concentration of workers in sub-baccalaureate jobs and student course-taking.
>
> Research Aim 3a: Investigate whether males and females in communities with higher concentrations of blue-collar workers take greater numbers of blue-collar courses and have lower odds of taking advanced academic math relative to their peers in communities with lower concentrations of blue-collar workers.
>
> Research Aim 3b: Examine the role of school course offerings in explaining course-taking disparities across communities with higher and lower concentrations of blue-collar workers.
>
> Research Aim 4: Investigate whether high school training in blue-collar communities benefits both men and women by examining gender disparities in males' and females' postsecondary and labor market outcomes.

Taken together, the goal of the first two research aims is to understand whether schools in communities with heavier concentrations of jobs that typically do not require bachelor's degrees shape the relative academic and vocational emphasis of school course offerings and student course-taking (Chapter 3). The school analysis pays close attention to how school resources may limit the types of courses these schools offer and examines a potential relationship between the local labor market and school course offerings independent of these resources. The student analysis focuses on the role of school course offerings in mediating observed relationships between the share of local sub-baccalaureate workers and student course-taking.

The remainder of this dissertation focuses on the gendered education and labor market consequences of high school training in blue-collar communities. Chapter 4 provides the background and motivation for examining this special case. Chapter 5 investigates the relationships between the concentration of blue-collar workers in the community, blue-collar and advanced academic high school course offerings, and males' and females' blue-collar and advanced academic course-taking. In Chapters 3 and 5, particular attention is paid to whether the greatest disparities between students across local labor markets exist among higher-achievers—those students who are best positioned to take advanced math during the last few years of high school. Chapter 6 examines whether high school training in blue-collar communities benefits both males and females by examining gender disparities in postsecondary enrollment and labor force outcomes. I pay attention to within-gender differences across communities with higher and lower concentrations of blue-collar workers and between-gender differences within communities that have similar shares of blue-collar workers. Chapter 2 describes the general data and methods common to each analytic chapter. In Chapter 7, I provide a summary and discussion of the findings. Taken together, this dissertation suggests a local economic dimension of (gendered) opportunities for educational and occupational success, and it highlights schools—as gatekeepers to skills training and embedded within communities—as an important force in this stratification process.

Broader Implications

Tensions surrounding the type of high school training required for success in the new economy run high. Conflicting messages from academics and policy-makers have been distilled by the mainstream media; prominent newspapers run articles supporting each prescription, from "The Case for Blue-Collar Work: College No Longer Guarantees Success"[1] to "Is College Worth It"? Clearly, New Data Say."[2] These opposing bold claims suggest that each form of high school training may benefit some stakeholders, and there may be inevitable tradeoffs to high school training geared towards college-going and tailored towards sub-baccalaureate jobs.

This dissertation discusses these tradeoffs and engages in this larger debate through interpreting the relationships found among local labor markets, high school curricula, and education and labor market outcomes from multiple angles. Underlying each of the relationships between the local labor market, school curricula, and student

---

[1] *The Guardian*, U.S. Edition. http://www.theguardian.com/commentisfree/2013/feb/19/college-no-longer-guarantees-success

[2] *New York Times*, New York edition. http://www.nytimes.com/2014/05/27/upshot/is-college-worth-it-clearly-new-data-say.html

educational and labor market outcomes are tensions among local economies, the national economy, and individuals. I draw attention to instances of alignment and misalignment between these stakeholders' interests and contextualize results by examining who benefits and who loses from each perspective. This dissertation pays attention to how the employment opportunities circumscribed by local economic opportunities and their relationships with school curricula may simultaneously disadvantage some and create unexpected educational and occupational opportunity for others. Finally, I discuss how high school training in blue-collar communities shapes females' educational and labor market outcomes in ways that coincide with and deviate from patterns of gender inequality often presented as uniform by scholars, policy makers, and the media.

Chapter 2: Data and Methods

This chapter provides information on the data and methods that are common across analytic chapters 3, 5, and 6. Specific data and methods information is detailed within each analytic chapter.

Data

This dissertation uses data from the Educational Longitudinal Study of 2002 (ELS:2002), a nationally representative study of about 750 schools and 16,000 students conducted by the National Center for Education Statistics (NCES). The data offer rich sociodemographic, high school, postsecondary, and early labor market profiles of a nationally representative group of sophomore students in 2002. These students were followed-up in 2004, 2006 (two years following expected year of high school graduation), and 2012 (eight years following expected year of high school graduation). These data are ideal for this research because NCES collected student high school transcripts and school course catalogs from about 93% of participating schools.

The school sample is limited to schools that provided course catalogs and to public schools to obtain school district fiscal information from the Common Core of Data (CCD) (n=540). The student sample is restricted to high school sophomores attending public schools in the base-year survey (n=12,770). To investigate course-taking differences across local labor markets, samples in Chapters 3 and 4 are restricted to students with high school transcript information (n=11,610). Chapter 5 investigates student postsecondary and labor market outcomes following high school and in early adulthood. Analyses predicting post-high school destinations two-years out of high school are restricted to high school graduates who were attending public schools when they were sophomores in high school and who participated in the 2006 follow-up and the 2002 base year survey (n=10,080). The final analyses predict labor force outcomes in early adulthood and are restricted to public high school sophomore students who graduated from high school and participated in the 2002 base-year and 2012 follow-up surveys (n=9,190). Per NCES guidelines, sample sizes are rounded to the nearest 10.

Local labor market information is obtained through linking schools in ELS:2002 to 2000 U.S. Census data, the year that most of these students entered their freshman year of high school. District per-pupil expenditures are obtained from the 2000-2001 CCD, data collected annually by the NCES with a wide-range of information on U.S. public schools and districts.

Measures

Local Labor Market

There is no general consensus on the best way to empirically capture the "local labor market." Studies have operationalized the local labor market using Metropolitan Statistical Areas (MSAs), counties, commuting zones (CZs), and census blocks. In this dissertation, the operationalization of the local economy depends on the overarching research goal. In Chapter 3, I investigate the relationship between the percentage of workers in sub-baccalaureate jobs in the local labor market, school course offerings, and student course-taking. This measure is intended to capture the general level of education and types of skills typical of jobs in the area, but is not industry- or occupation-specific. Thus, I operationalize the local labor market in Chapter 3 at the commuting zone level, which is consistent with recent work that classifies local labor markets by the share of workers employed in occupations associated with broad tasks (Autor and Dorn 2013). Commuting zones were developed by the Economic Research Service branch of the United States Department of Agriculture and are clusters of counties that are economically linked through strong commuting ties.

In Chapters 5 and 6, I investigate the gendered consequences of high school training in blue-collar communities—places formerly studied as "company towns" that inspired ethnographies on the dynamics of stratification in towns and cities. Because I am interested in examining gender stratification in contemporary blue-collar communities, I operationalize the local labor market at the county-level in these chapters. Using county economic characteristics allows me to retain rural communities, unlike MSAs. In addition, the share of blue-collar workers in counties is likely more closely tied to high school training than the share of blue-collar workers in the larger commuting zones, which is what ancillary analyses suggested. Given only 580 schools and a declining number of communities with heavy concentrations of blue-collar workers, this smaller unit of analysis allows me to exploit a larger degree of variation. MSAs and CZs, on the other hand, run the risk of masking this variation of interest and rendering these communities empirically invisible. To classify workers in the local labor market, I use the Census 2000 two-digit major occupation groups that were based on the 2000 Standard Occupation Codes (SOC).

High School Training

Course offerings and course-taking were identified within the school course catalog and high school transcripts by their Classification of Secondary School Courses (CSSC) code—a hierarchical, 6-digit code that indicates a course's main area of study, the sub-category of study, and specific name.

Advanced math course-taking and the academic rigor of school curricula are measures common to each analytic chapter. Advanced math course-taking is a dichotomous indicator of whether a student attempted a math course beyond Algebra II by the end of high school—an indicator of college-preparation and a strong predictor of college enrollment and completion (Adelman 2006). This measure was constructed from an ordinal-level measure indicating the highest math course level a student attempted by the end of high school (0=no math; 1=basic/remedial math; 2=general/applied math; 3=pre-algebra; 4=Algebra 1; 5=geometry; 6=Algebra 2; 7=advanced math/precalculus; 8=calculus) (see Riegle-Crumb and Grodsky 2010 for more detailed information). The academic rigor of schools' math curricula parallels ths student measure and is operationalized as the number or percentage of courses offered above Algebra II. Overall academic rigor of schools' curricula is measured through AP/IB course offerings, include those in the social studies, math, science, English, and the fine arts. Other course-taking and course offering variables are described separately in each chapter.

Control Variables

All analyses control for the following sociodemographic factors: race/ethnicity, highest parental education, parental income and family structure. In ancillary analyses, I also controlled for parental occupation. Results are robust to this measure, and I do not include this control in models due to its strong association with parental education. Models control for the percentage of civilians over age 16 in the county who are unemployed, constructed using U.S. Census county-level data. I also control for students' base-year math achievement test score, whether the student transferred to a new school, and other academic background indicators.

All analyses control for school urbanicity, district per-pupil expenditures, the percentage of students eligible for free- or reduced-price lunch, school percent minority, vocational and magnet school flags, and number of total school courses offered. Seven percent of public high schools did not provide a course catalog, so these schools were dropped from the school analysis. Course offerings were imputed for schools without course catalogs for the student-level analyses. An indicator of whether the respondent's high school provided a course catalog is included as a control. In an attempt to address time-invariant, unobserved heterogeneity between the states in which schools are located, all analyses include state fixed-effects.

Weighted descriptive statistics are shown for the sample of public high school sophomores and for the sample of public high schools in Appendix A.

General Analytic Strategy

Depending on the nature of the dependent variable, this dissertation uses Ordinary Least Squares (OLS), logistic, or multinomial logistic regressions to investigate the research questions. I employ a nested modeling approach in order to examine whether high school course offerings mediate the associations between the local labor market and the dependent variables of interest and whether math achievement test scores moderate the associations between the local labor market and student course-taking. Because a primary question of this research is whether high school training mediates any observed associations between the local labor market and males' and females' outcomes, I report logit coefficients in the form of average marginal effects (AME), which are unsusceptible to changes in unobserved heterogeneity across logistic regression models (Mood 2010). The "suest" command in Stata is used in order to assess whether changes in coefficients across models from OLS regressions are statistically significant. Tables with selected coefficients are shown in the text and full models are available in the appendices.

Analyses are weighted with the appropriate NCES weight to adjust for unequal probability of selection into the ELS:2002 sample of students. The survey command ("svy") in Stata 13.0 is used to incorporate the appropriate student sample weight and adjust for clustering within schools—a strategy for handling clustered data that requires fewer assumptions than Hierarchical Linear Modeling (HLM) (Primo, Jacobsmeier and Milyo 2007). As a robustness test, I compared results from models using the "svy" command with those produced with HLM. Consistent with other work comparing both strategies for handling clustered data (Warren and Edwards 2005), ancillary analyses from the first chapter using Hierarchical Linear Modeling (HLM) produced substantively identical results to those using the "svy" command in STATA. I use multiple imputation to handle missing data on the independent variables. No school or student variable has missing values exceeding 10%, except for student expectations (15%).

Chapter 3: Preparing for Local Labor in a Global Economy: Local Labor Markets, High School Course Offerings, and Student Course-Taking

Introduction

As early as the late nineteenth century, scholars and policymakers have argued that the primary purpose of schools is to supply employers with a trained workforce—in contrast to the progressive ideal of public schools as places to nurture well-rounded citizens. Today, they have voiced concerns about disparities in young adults' preparation for the knowledge-based economy, the rising college-wage premium, and the growing chasm between "good" and "bad" jobs (e.g., Carnevale and Desrochers 2002, Hout 2012; Kalleberg 2013). These concerns, combined with pressures to regain economic vitality after the Great Recession, have heightened public debates over the type of high school training that will best prepare students for good jobs in the new economy.

Today, calls for further academic curricular intensification to prepare high school students for a four-year degree (Adelman 2006), efforts to re-focus energy towards career and technical education (CTE) coursework to train students for specific skills demanded by sub-baccalaureate jobs (Symonds, Schwartz, and Ferguson 2011), and prescriptions to prepare students for both four-year college enrollment *and* sub-baccalaureate careers (*Perkins Act* of 2006) are each represented in academic and policy discussions. Leaders of these discussions and major educational reforms and reports, including the *National Defense Education Act* (1958) and *Rising Above the Gathering Storm* (2007), primarily focus on how schools can provide students with the skills to meet national economic demands and create a globally competitive workforce. Indeed, the *Common Core State*

Standards Initiative aims to standardize curriculum across the nation's schools. Yet, recent work suggests a "new geography of jobs" (Moretti 2013) in which the distribution of jobs requiring higher- and lower- levels of education has never been more uneven across places within the United States. Given this trend, the education levels required to meet local labor market demands may align more with the four-year college-for-all ethos in some places and more with the initiatives to revive a strong CTE emphasis in others.

In addition to this tendency to focus on national needs, the 1960s marked a shift in sociological research rooted in both status-attainment and social reproduction paradigms. Studies moved from conceptualizing schools as intimately connected with the dynamics of local communities to how they served or reproduced inequalities within broader society (Arum 2000). Yet, schools are not only microcosms of society that train students for highly differentiated jobs demanded by the national economy, they are also embedded within the communities they serve and, at least historically, have geared training to the skills demands of local jobs (Rury 1991).

Few contemporary and no nationally representative studies have examined the relationship between local labor markets and school course offerings. Case studies, however, have documented enduring tight couplings between local economic interests and school curricula (Mickelson 1999; Ray and Mickelson 1990). In this chapter, I investigate the potential relationships among the local labor market, school course offerings, and student course-taking in today's economy, focusing specifically on the variation in local workers employed in sub-baccalaureate jobs. This is an important examination given reinvigorated debates surrounding the merits of a career-focused versus a four-year college preparatory curriculum, in addition to the substantial (Bozick 2009) and increasing spatial polarization between jobs requiring bachelor's and sub-baccalaureate degrees (Moretti 2013).

The first part of this chapter will examine whether schools in local labor markets with higher concentrations of workers employed in sub-baccalaureate jobs devote a larger share of their curricula to CTE courses and devote a smaller share of their academic course offerings to advanced coursework compared to schools in local labor markets with lower concentrations of these jobs. In addressing this question, I discuss how both school resources (i.e., socioeconomic status composition and available monetary funds) and school curricular investments, independent of these resources, may underlie variation in the relative CTE or advanced academic character of school course offerings across these local economic contexts.

The second half of this study extends the analysis to explore potential connections among the local labor market, high school course offerings, and student course-taking. Specifically, I ask whether students attending schools in local labor markets with higher concentrations of sub-baccalaureate jobs take greater numbers of CTE courses and have lower odds of taking an advanced academic math course—a math course above Algebra II— by the end of high school. Many states now require Algebra II as a high school graduation requirement, but research finds that taking a math course beyond Algebra II represents a critical threshold at which students' odds of attending college drastically increase (Adelman 2006). Next, I examine whether disparities in CTE and academic student course-taking across these local economic contexts are a function of differences in CTE and academic school course offerings. Finally, this chapter will look at whether the course-taking gap between local labor markets with higher- and lower- concentrations of sub-baccalaureate jobs is widest among higher-achieving students—those who are best positioned to take advanced math and attend a four-year college.

Background

The Relationship Between Local Labor Markets and School Course Offerings

In their research on rural-urban differences in AP/IB course offerings, Roscigno et al. (2006) assert that high school course offerings are a function of both resources that constrain or expand course offering options and curricular investments independent of available resources. Access to resources and decisions to invest in certain types of coursework may also underlie a relationship between high school curricular foci and the local labor market. For example, research shows that the local labor market affects family and community resources (Tomaskovic-Devey 1987; Wilson 1987), which, in turn, influence school resources such as available funds and school socioeconomic composition (Roscigno et al. 2006). For example, since a portion of school revenue is derived from *ad valorem* taxes, schools in areas with higher concentrations of low-wage jobs tend to draw from a smaller pool of funds (Roscigno 1995). These schools likely face greater educational spending constraints than schools in places with lower concentrations of low-wage jobs. Given the four-year college wage premium, schools in areas with higher concentrations of sub-baccalaureate workers may have fewer resources than schools in areas with higher concentrations of workers in jobs that typically require a bachelor's degree.

Research demonstrates links between these different types of resources and the kinds of courses schools offer. For example, studies link lower per-pupil expenditures and lower-status student bodies to less rigorous academic curricula (Adelman 2006; Klugman 2013; Roscigno, Tomaskovic-Devey and Crowley 2006). Administrators may expect poorer and wealthier students to be interested in different kinds of courses, and these expectations may lead to curriculum differences in poorer and wealthier schools (Oakes 2005). Research also suggests that lower-SES students are the least likely to attend high schools that offer math courses beyond Algebra II (Adelman 2006). This may be because more highly educated parents are more likely to act individually and collectively to procure educational advantages for their children (Lareau 1987; Lucas 2001), including requesting that schools offer more AP courses (Klugman 2013). Drawing from this research, I expect that schools in local labor markets with higher concentrations of workers in sub-baccalaureate jobs will devote a larger share of their curricula to CTE courses and offer a less rigorous academic curriculum compared to schools in local labor markets with lower concentrations of workers in these jobs, in part because these schools have fewer resources.

Whereas national economic interests have shaped large-scale curricular initiatives, local economic interests may shape school curricular offerings in ways that don't align with national goals. For example, Roscigno et al. (2006:2124) speculate that administrators and schools boards may "invest resources in a manner consistent with the perceived needs of the local population and local labor markets." They intimate that these investment choices may explain urban-rural-suburban differences in curriculum, including Advanced Placement (AP) course offerings. As Ainsworth and Roscigno (2005:266) suggest, schools may emphasize particular types of coursework as a way of "training the future local labor pool." Indeed, in a case study of high school tracking, Oakes and Guitton (1995) note that one of the district's major goals was to offer CTE courses that aligned with local economic demands.

Additionally, studies suggest that local economic interests may shape the character of school course offerings through business-school partnerships and economic stakeholders' influence on school boards and educational task force teams (Ray and Mickelson 1990; Shea, Kahane and Sola 1990). From early 20th century textile factory owners constructing a school dedicated to teaching factory skills (Bartlett et al. 2002) to a large computer firm directly shaping course offerings in a North Carolina school district (Mickelson 1999), explicit alliances between local businesses and school curricula have a long history (Bowles and Gintis 1976; Gelberg 1997; Shea, Kahane and Sola 1990).

It is possible for schools to offer a strong CTE curriculum without sacrificing academically rigorous coursework by devoting a larger share of their academic curriculum to higher-level, advanced courses. However, the studies discussed above suggest that course offerings may mirror the skill- and education-levels associated with local jobs. Thus, I expect that schools in local labor markets with higher concentrations of workers employed in sub-baccalaureate jobs devote a larger share of their curricula to CTE courses and offer a less rigorous academic curriculum compared to schools in local labor markets with lower concentrations of workers in sub-baccalaureate jobs.

The Local Labor Market and Student Course-taking

This study's second set of questions extends the analysis to investigate relationships among the local labor market, high school course offerings, and student course-taking. A large body of literature exists on within- and between-school stratification in student course-taking. However, only one study to my knowledge examines the relationship between student course-taking and the local labor market (Riegle-Crumb and Moore 2013). This study focused on local shares of female STEM workers and gender gaps in high school physics course-taking.

If schools in areas with higher concentrations of sub-baccalaureate jobs devote a larger share of their curricula to courses that reflect the related skills and lower educational requirements of these jobs, then differences in students' course-taking may be a function of different course-taking options. The relationship between school course offerings and student course-taking may be direct; schools with a greater share of CTE courses and a less rigorous academic curriculum may translate into uneven access to these courses for students.

Research suggests that school course offerings may also shape student course-taking indirectly. For example, students may be less likely to take academically rigorous courses in schools that provide more alternatives to academically intensive courses (Lee, Smith and Croninger 1997). For these reasons, students attending schools in local labor markets with higher concentrations of workers employed in sub-baccalaureate jobs may devote a larger share to CTE coursework and be less likely to take advanced math due to high school course offering differences.

Students’ course-taking may also be related to the local economy in ways that are independent of school course offerings. First, local economic opportunities may shape students’ educational investments. Bozick (2009) found that students are more likely to attend college in Metropolitan Statistical Areas (MSAs) where more jobs require bachelor’s degrees compared with MSAs where more jobs require only a high school diploma. Bozick and Deluca (2011) and Petrin, Schaft, and Meece (2014) analyzed student reports of reasons they did not attend college and found that perceptions of local job opportunities played an important role in their decisions to enter the labor force. Similarly, Walters (1984:659) suggests that “students use schooling as a means of preparation for anticipated future occupations”. She found that national high school and college enrollments between 1952 and 1979 were positively associated with the expansion of occupations requiring higher levels of education.

The local labor market may also shape student course-taking by circumscribing students’ ideas about possible or desirable occupations. For example, Riegle-Crumb and Moore (2013) found that females were more likely to take physics classes if they lived in places with more female STEM professionals. They suggest that these labor markets may expand the range of occupations that female students perceive as possible for themselves. At the same time, the local economic context may also constrain students’ perceptions of occupational choices. A qualitative study on gender in schools suggests that male students living in a town that predominately relied on blue-collar jobs viewed academic success as feminine and associated masculinity with manual labor (Morris 2008).

This study cannot empirically adjudicate between the various mechanisms underlying independent relationships between the local labor market and high school course offerings and local labor markets and student course-taking. As discussed earlier, some studies suggest that schools may offer coursework that aligns with local labor demands. Studies also suggest that local labor markets may influence course-taking by affecting students' access to courses and jobs, knowledge about possible career pathways, and preferences for work. Local job opportunities may also shape students' human capital investment decisions. However, it is important to note that school- and student-level educational investments are constrained by and made within opportunity structures that vary widely across local labor markets (Roscigno and Crowley 2001). Moreover, variation in schools' and students' curricular decisions across local labor markets may reflect different cultural orientations that are "embedded in community histories and especially stratification histories" (Roscigno 2006:2139). In reality, human capital investments in addition to socialization and cultural processes likely interact with one another to shape educational disparities independent of more easily observed factors (Gambetta 1987; Hanson, Kominiak and Carlin 1997).

The Role of Achievement

Finally, this chapter explores whether student achievement levels moderate the association between the local labor market and advanced math course-taking. The greatest differences in course-taking across schools in communities with higher and lower shares of workers in sub-baccalaureate jobs may exist among higher-achieving students. High achieving students have the skills required to take these courses, so they might be most affected the available advanced coursework options at their schools. In addition, the course-taking enrollment decisions of those best positioned to take advanced coursework may depend on the extent to which they believe that advanced academic coursework facilitates upward mobility in their community. For example, Roscigno and Crowley (2001) found that rural students benefitted less from parental and school educational investments than their urban and suburban counterparts. They argue that this may be “partially a function of local labor market opportunity, specifically the lower return to human capital attributes (including educational credentials) in rural areas” (2001:289). Relatedly, in a classic study of educational plans, Sewell (1964:25) found that the greatest disparities in boys’ plans to attend college by place of residence occurred among the highest achievers; he attributed the lower educational expectations of high-achieving farm boys compared to boys from urban cities to differences in “educational and cultural facilities, as well as occupational opportunities.”

Achievement may also moderate the association between the share of local workers in sub-baccalaureate jobs and student advanced math course-taking due to institutional sorting processes. Although a corpus of research demonstrates that school sorting is not a meritocratic process, teachers and administrators attempt to sort students into more or less rigorous coursework by “ability,” typically measured by achievement tests. The occupational structure of the local labor market may influence whether teachers and counselors guide high achievers into advanced academic courses. In local labor markets with many jobs that require college degrees and high-tech skills, schools may be more likely to encourage higher-achieving students to take courses that prepare them for pathways into high-status professions. Sorting high and low achieving students into "appropriate" course levels may be less important in schools that serve areas with high concentrations of sub-baccalaureate jobs. In areas with greater opportunities to obtain a job without a bachelor's degree, teachers and administrators may be less likely to ensure that high-achievers enroll in advanced academic coursework. For these reasons, the relationship between student achievement and advanced math course-taking may be weaker in areas with higher concentrations of workers in sub-baccalaureate jobs and stronger in areas with lower concentrations of workers in these jobs.

Research Questions

This chapter addresses the following research questions:

1a) Do schools in communities with higher concentrations of sub-baccalaureate workers devote a larger share of their curricula to CTE courses and a smaller share to advanced academic coursework? 1b) To what extent are these relationships a function of school resources?

2a) Do students in communities with higher concentrations of workers in sub-baccalaureate jobs take greater numbers of CTE courses and have lower odds of taking advanced academic math? 2b) Is the relationship between the local labor market and advanced academic course-taking moderated by academic achievement?

3) To what extent are the relationships between the local labor market and student course-taking mediated by school course offerings?

Data and Methods

<u>School-Level Measures</u>

Dependent Variables: CTE and Rigor of Academic Curriculum

To capture the relative career/technical and academic emphases of school curricula, I measure CTE and advanced academic course offerings as percentages of schools' total course offerings. This measure is created by dividing the number of CTE courses by the total number of academic, fine arts, and CTE courses and multiplying it by 100. I define CTE courses as those that relate to the sub-baccalaureate occupations included in the local labor market measure (e.g., machine shop, auto mechanic, food-service training, bookkeeping, and apparel and accessories marketing). I attempt to capture the academic rigor of school curricula with two measures. The first measure is a percentage of math course offerings above Algebra II ((number of math courses above Algebra II/total math course offerings)*100). Four schools had missing values for all math courses and are excluded from the analysis. The second measure is a percentage of academic course offerings that are AP/IB ((number of AP/IB courses/total academic course offerings)*100).

Independent Variables

Local Labor Market: The independent variable is measured as the percentage of employed civilians 16 years of age and older in the commuting zone who are employed in jobs that typically do not require a four-year degree. These include occupations in healthcare support, food preparation and serving, building and grounds cleaning and maintenance, personal care and services, office and administrative support, blue-collar (production; construction and extraction; transportation and material moving; and installation, maintenance, and repair), and farming, fishing, and forestry occupations. In addition, the minor occupational cluster, cash and retail occupations, was extracted from the major occupational group, “Sales and Related Occupations,” which includes higher education level jobs, such as securities, commodities, and financial services sales agents.

School Resources. Drawing from other work (e.g., Roscigno and Crowley 2001), I conceptualize school resources as educational spending and school socioeconomic composition. Previous research has linked both to advanced academic course offerings, including AP course offerings (Adelman 2006; Roscigno et al. 2006; Klugman 2013).

Consistent with other work (e.g., Roscigno 2006 et al.), this study relies on the CCD school district measure of the total dollars from local, state, and federal sources spent per child as a proxy for school educational spending. I measure school socioeconomic composition as the percentage of students eligible for free or reduced-price lunch and with the school’s average level of parental education, an important indicator of school socioeconomic status (Frost 2007). I obtained each school’s average parental education level by calculating the mean of students' highest parental educational attainment within each school (1=less than high school; 2=high school degree; 3=some college; 4=four-year college degree; 5=advanced degree). I then constructed a dichotomous indicator from a quartile measure of this variable that indicates whether a school is within the 4th quartile (reference=1st, 2nd, and 3rd quartiles) for the average parental education of the school. This decision was based on results demonstrating that only the top quartile was strongly and statistically significantly associated with the outcomes of interest; however, results including dummy variables for each quintile and using a continuous measure of the average parental education of the school are consistent with those reported. In ancillary analyses, I operationalized school SES with a measure indicating the proportion of students with parents in professional occupations and obtained consistent results.

Controls. To address time-invariant, unobserved heterogeneity between the states in which schools were located, all analyses included state fixed-effects. Models do not control for region given the use of state fixed effects, but results are substantively identical with this control. This strategy better captures variation in school course offerings that are a function of local labor markets and limits variation that arises from state-level factors, such as state labor market characteristics. Results including and excluding state fixed-effects are consistent. Analyses also control for the percentage of civilians 16 years of age and older that is unemployed in the county, school size, student-teacher ratio, and the controls described in Chapter 2. Finally, models adjust for the number of school courses offered (total number of total academic, CTE, and fine arts courses for models predicting CTE course offerings; total number of total math courses offered for model predicting advanced math course offerings; and total number of academic courses offered for models predicting AP/IB courses).

<u>Student-Level Measures</u>

Dependent Variables: CTE and Advanced Math Course-taking

CTE Course-taking. This measure includes the same courses as those in the CTE course offerings variable and is measured as the total number of CTE courses related to sub-baccalaureate jobs that students enrolled in by the end of high school. CTE courses in this measure include those in: family and consumer science, agricultural business, natural resources, consumer/personal/miscellaneous services, business and office, marketing and distribution, engineering and engineering related technologies, vocational home economics, industrial arts, mechanics, precision production, transportation, and general labor market coursework. CTE coursework related to occupations that do not align with the sub-baccalaureate occupations in the labor market measure or that typically require a bachelor's degree are excluded. These include courses in computer and information science, education (e.g., school psychology, teacher education), business and management (e.g., organizational behavior, investments and finance), architecture and environmental design, and library and archival sciences. Results including these courses are consistent with those reported in this dissertation. Although these CTE courses are excluded, I refer to this measure as "CTE course offerings (or course-taking)" for simplicity. This variable is logged to accommodate its skewed distribution.

Advanced Math. This measure is a dichotomous indicator of whether a student attempted an academic math course beyond Algebra II by the end of high school. Almost 20 states now require students to complete Algebra II to graduate from high school, but research suggests that taking one math course beyond Algebra II constitutes the new "tipping point" at which students' odds of college enrollment and completion drastically increase (Adelman 2006:xvii-xix). To construct this indicator, I use an ordinal measure of the highest math course a student attempted by the end of high school (0=no math; 1=basic/remedial math; 2=general/applied math; 3=pre-algebra; 4=algebra 1;

5=geometry; 6=algebra 2; 7=advanced math/precalculus; 8=calculus; see Riegle-Crumb and Grodsky 2010 for detailed information). This measure mirrors the academic rigor of school math course offerings measure discussed above.

Controls

In addition to the controls discussed in Chapter 2 , analyses also include controls for 10^{th} grade math course level, 10th grade academic GPA, 10^{th} grade educational expectations, and all school controls used in the school-level analyses. I also control for the total number of courses on students' transcripts in an attempt to account for differences in the availability of transcript years among students with transcript information. In addition, analyses include a categorical measure indicating whether students in the base-year sample of ELS:2002 remained enrolled in their base-year school in 12^{th} grade (reference), transferred to a new school, or else (dropped out, "earned a GED/graduated early", were "out of scope," or homeschooled). All student analyses also control for school and local labor market controls described in each analytic chapter. Table 3.1 shows the means and proportions for the dependent variables predicted in this chapter.

Table 3.1. Weighted Means/Proportions for Dependent Variables

	Mean/Proportion	SD
Sample of Public High Schools (n=540)		
CTE Course Offerings as Share of Total Courses	21.51	9.06
Advanced Math Offerings as Share of Total Math Courses	28.41	11.27
AP/IB Course Offerings as Share of Total Academic Courses	6.42	5.76
Sample of Public High School Students (n=11,610)		
Total Number of CTE Courses Taken (logged in paren)	3.50 (.64)	3.20 (1.40)
Took Math Course > Alg 2 by End of High School	0.46	

Analytic Approach

To examine the relationship between the local labor market and school course offerings, I use Ordinary Least Squares (OLS) regression to predict the association between the percentage of local workers employed in sub-baccalaureate jobs and the share of school course offerings devoted to CTE and advanced academic courses. I nest these models to assess 1) whether differences in school resources help explain observed associations between the local labor market and school course offerings, and 2) whether a relationship between the local labor market and school course offerings exists independent of differences in resources. In ancillary analyses, CTE and advanced academic course offerings were measured as count variables using Poisson, negative binomial, and zero-inflated negative binomial (10% of schools offer no advanced academic courses) regressions. Results across these specifications yield substantive interpretations identical to those presented.

For the student-level analysis, I use OLS regression to predict the total number of CTE coursework students took in high school (logged). I use logistic regressions to predict students' odds of taking a math course beyond Algebra II by the end of high school. I nest the models to assess whether differences in school course offerings mediate the observed associations between the local labor market and course-taking and to examine whether math achievement test scores moderate the relationship between the local labor market and students' advanced math course-taking. Full models are included in Appendix B. In ancillary analyses, results predicting CTE course-taking with negative and zero-inflated binomial regressions produced substantive interpretations identical with those presented. Results using the percentage of students' total coursework in CTE courses also yield consistent results.

Findings

Local Labor Market and School Course Offerings

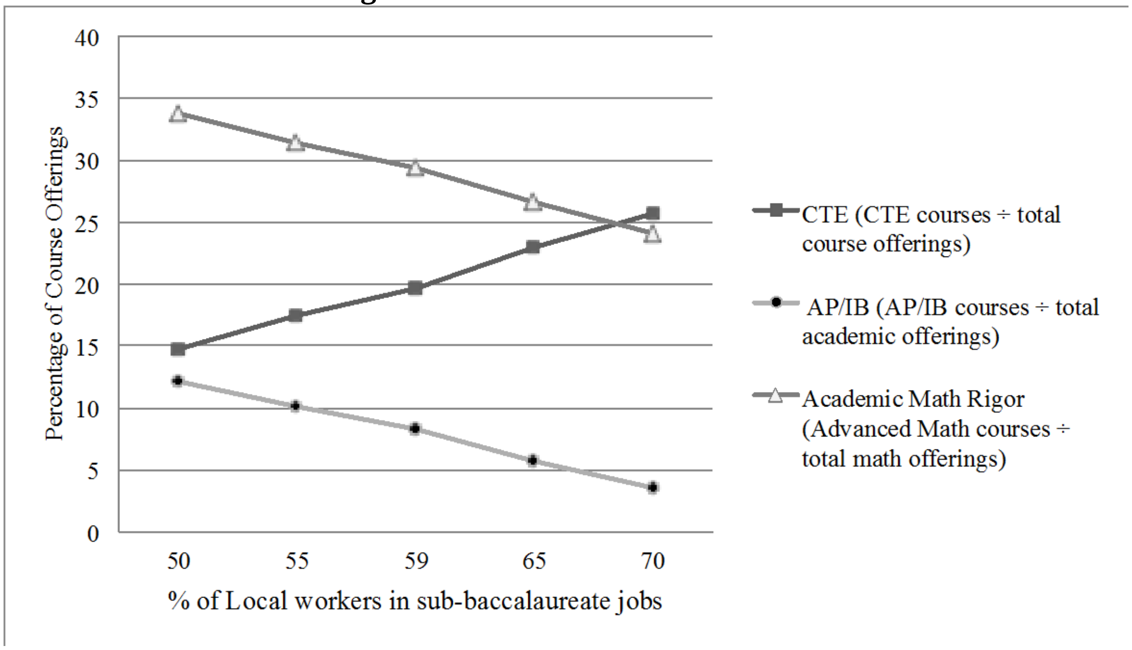
Table 3.2 presents coefficients from an OLS regression estimating the relationship between the percentage of local workers employed in sub-baccalaureate jobs and the percentage of school course offerings dedicated to CTE courses. Model 1 shows a positive, statistically significant relationship ($p<.001$), such that a one-unit increase in the percentage of local workers employed in sub-baccalaureate jobs is associated with a .55 percent increase in the share of school course offerings devote to CTE courses, on average and conditional on state fixed effects. Figure 3.1 depicts this relationship, showing that schools in local labor markets with the median percentage of workers employed in sub-baccalaureate jobs (59%) devote about 20% of their total course offerings to CTE courses. The difference in the percentage of CTE courses offered at schools in local labor markets that are about one standard deviation below the median (55%) and one standard deviation above the median (65%) for the percentage of workers employed in sub-baccalaureate jobs is about 6% (23%-17%), on average and conditional on state fixed-effects. This is about two-thirds of a standard deviation difference in the percentage of course offerings dedicated to CTE course offerings (SD=9.06).

Table 3.2. OLS Regression Predicting CTE Course Offerings (as % of total course offerings)

	Model 1	Model 2	Model 3
Local Labor Market			
% of workers employed in sub-baccalaureate jobs	0.551***	0.526***	0.362**
	(0.113)	(0.145)	(0.135)
% unemployed		0.267	0.244
		(0.393)	(0.361)
School Demographics			
% minority		-0.023	-0.048
		(0.022)	(0.027)
Student-teacher ratio		-0.031	-0.217
		(0.148)	(0.133)
School size		-0.001	-0.000
		(0.001)	(0.001)
Urbanicity (ref: urban)			
Suburban		3.724**	3.444*
		(1.386)	(1.303)
Rural		2.968	2.255
		(1.674)	(1.610)
Vocational school flag		5.606**	5.082*
		(2.136)	(2.074)
Magnet school flag		-3.155	-2.384
		(1.613)	(1.421)
# of school courses		0.031***	0.031***
		(0.006)	(0.006)
School Resources			
Per-pupil total expenditures 2000-01			-0.001***
			(0.000)
4th quartile for average parental education			-5.629***
			(1.306)
% Free/reduced-cost lunch			0.542
			(0.532)
Constant	-13.557	-18.467	-1.323
	(7.977)	(10.144)	(9.816)
N=540			

*** p<0.001, ** p<0.01, * p<0.05; Standard errors in parentheses.
All models include state fixed-effects.

Figure 3.1. The Relationship between the Local Labor Market and High School Course Offerings



Note: Predicted course offerings are calculated from Models 1 of Tables 3.2 and 3.3.
% of local workers in sub-baccalaureate jobs: Median-59.17; SD-5.68

The second model in Table 3.2 indicates that a statistically significant relationship remains between the local labor market and CTE course offerings, net of state fixed effects, school, and local labor market demographics, including the percentage of students who are members of racial/ethnic minority groups in the school, the percentage of unemployed workers in the local labor market, and other characteristics. To what extent is the relationship between the local labor market and CTE course offerings a function of differences in school resources? Controlling for school resources in Model 3—specifically per-pupil expenditures and school membership in the top quartile for average parental education—reduces the magnitude of the relationship by about 30%. Ancillary analyses indicate a statistically significant difference between Models 2 and 3 in the local labor market coefficients. Even after adjusting for school resources and other factors, schools in local labor markets with higher concentrations of workers in sub-baccalaureate jobs dedicate a larger share of their course offerings to CTE courses, on average ($p<.01$).

Table 3.3 presents coefficients from an OLS regression predicting the relationship between the percentage of local workers employed in sub-baccalaureate jobs and the rigor of school academic curriculum. The first set of models shows the relationship between the local labor market and the academic rigor of schools' math curricula. Model 1 indicates that, conditional on state fixed-effects, a one-unit increase in the percentage of local workers employed in sub-baccalaureate jobs is associated with about a .49 decrease in the percent of math courses offered beyond Algebra II, on average. This relationship is depicted in Figure 3.1, showing that schools in local labor markets with the median percentage of workers employed in sub-baccalaureate jobs (59%) devote about 30% of their total math course offerings to those above Algebra II. The difference in the percentage of math courses offered beyond Algebra II at schools in local labor markets that were one standard deviation below the median and one standard deviation above the median for the percentage of workers employed in sub-baccalaureate jobs is about five percent (31%-26%), on average and conditional on state fixed-effects. This difference translates into a little under half of a standard deviation difference in the percentage of math courses offered beyond the level of Algebra II.

Table 3.3. OLS Regression Predicting Advanced Math Course Offerings (as % of math courses) and AP/IB Course Offerings (as % of total academic course offerings)

	% Advanced Math			% AP/IB		
Variables	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
Local Labor Market						
% of workers employed in sub-baccalaureate jobs	-0.488***	-0.491**	-0.376*	-0.432***	-0.275***	-0.213**
	(0.136)	(0.167)	(0.172)	(0.053)	(0.063)	(0.067)
% unemployed		0.273	0.272		0.283	0.232
		(0.491)	(0.494)		(0.192)	(0.176)
School Demographics						
% minority		-0.101**	-0.069		-0.039***	-0.022
		(0.038)	(0.044)		(0.011)	(0.014)
Student-teacher ratio		-0.090	-0.050		0.149	0.143
		(0.201)	(0.224)		(0.119)	(0.129)
School size		0.004*	0.003*		0.003***	0.003***
		(0.001)	(0.001)		(0.001)	(0.001)
Urbanicity (ref: urban)						
Suburban		-1.773	-2.047		-0.368	-0.622
		(2.030)	(2.008)		(0.691)	(0.666)
Rural		-1.191	-1.057		-0.637	-0.631
		(2.434)	(2.396)		(0.894)	(0.865)
Vocational school flag		-3.440	-2.916		-1.659	-1.183
		(2.383)	(2.437)		(0.995)	(0.952)
Magnet school flag		4.195*	3.497		0.409	-0.109
		(2.086)	(2.051)		(0.755)	(0.763)
# of school courses		-0.154	-0.192*		0.007*	0.006
		(0.085)	(0.088)		(0.003)	(0.003)
School Resources						
Per-pupil total expenditures 2000-01			0.000			-0.000
			(0.000)			(0.000)
4th quartile for average parental education			2.649			2.529***
			(1.607)			(0.645)
% Free/reduced-cost lunch			-1.043			-0.389
			(0.755)			(0.344)
Constant	54.759***	59.278***	53.757***	32.346***	17.289***	15.298**
	(9.107)	(12.017)	(12.268)	(3.719)	(5.036)	(5.236)
N=535						

*** p<0.001, ** p<0.01, * p<0.05; Standard errors in parentheses.
Note: All models include state fixed-effects.

Controlling for basic school and contextual demographic variables in Model 2 barely changes the magnitude of this relationship. After adjusting for school resources in Model 3, the strength of the association between the local labor market and advanced academic math course offerings is reduced by about 23%, and the change in the local labor market coefficients between Models 2 and 3 was statistically significant. Yet, given similar resources, schools in local labor markets with higher concentrations of sub-baccalaureate jobs devote a statistically significantly smaller share of their math course offerings to advanced academic math courses.

Now turning to the second set of models predicting the share of academic course offerings devoted to AP/IB courses, we observe in Model 1 that schools in local labor markets with higher concentrations of sub-baccalaureate jobs devote a smaller share of their academic curricula to AP/IB courses ($p<.001$). Figure 3.1 shows this relationship and indicates that the difference in the percentage of academic courses devote to AP/IB courses between schools in local labor markets that are about one standard above the median and one standard deviation above the median for the percentage of local workers in sub-baccalaureate jobs is about 5% (10%-5%). This is over three-quarters of a standard deviation difference in the percentage of academic courses that are AP/IB (SD=5.76).

Adjusting for school demographics in Model 2—specifically percentage of minority students in the school, school size, and the total number of academic course offerings—reduces the strength relationship by about 36%. Model 3 introduces school resources, which further attenuates the magnitude of the relationship between the local labor market and the share of academic courses devoted to AP/IB courses, but a statistically significant relationship persists ($p<.01$).

Overall, these results suggest that schools in local labor markets with higher percentages of workers in sub-baccalaureate jobs devote a larger share of their curricula to CTE courses and a smaller share of their academic curricula to advanced courses, partly because these schools have fewer resources. Even after controlling for school resources, however, these relationships remain statistically significant independent.

Local Labor Market and Student Course-taking

I now turn to analyses predicting the relationship between the local labor market and student course-taking, paying particular attention to the role of school course offerings. Table 3.4 presents OLS regression coefficients predicting the relationship between the percentage of local workers employed in sub-baccalaureate jobs and the number of CTE courses students took by the end of high school (logged). Model 1 controls for family, academic background, and school measures and shows a positive, statistically significant relationship between CTE course-taking and the share of local workers employed in sub-baccalaureate jobs. Specifically, a one-percent increase in the number of local workers employed in sub-baccalaureate jobs is associated with a 2.8 percent increase in the number of CTE courses students take.

Table 3.4. Coefficients from OLS Regression Predicting # of CTE Courses Taken (logged)

	Model 1	Model 2
Local Labor Market		
% of workers employed in sub-baccalaureate jobs	0.028***	0.019***
	(0.007)	(0.003)
Base-Year Controls		
Parental Education (ref: no college degree)		
Two-year degree	-0.194***	-0.152***
	(0.031)	(0.027)
Four-year degree or higher	-0.249**	-0.244***
	(0.076)	(0.055)
10th grade math achievement test score	-0.013***	-0.011***
	(0.002)	(0.001)
School Resources		
School in 4th quartile for average parental education	-0.142	-0.032
	(0.077)	(0.034)
% Free/reduced-cost lunch	0.086**	0.073***
	(0.033)	(0.013)
Per-pupil total expenditures 2000-01	-0.000**	-0.000***
	(0.000)	(0.000)
School Course Offerings		
School CTE offerings as % of total course offerings		0.028***
		(0.002)
Academic rigor of math curriculum		-0.002
		(0.001)
School AP/IB offerings as % of total academic course offerings		-0.006*
		(0.003)
Constant	-0.744	-0.939**
	(0.634)	(0.308)
N=11,610		

*** p<0.001, ** p<0.01, * p<0.05; Standard errors in parentheses.
Note: All models include state fixed-effects. Remaining models control for sex, race/ethnicity, family structure, family income, 12th grade enrollment status, 10th grade math course level, 10th grade academic GPA, 10th grade educational expectations, total # of courses taken, percentage of minority students in school, magnet school flag, vocational school flag, school size, # school courses offered, urbancity, student-teacher ratio, school course catalog provided, and percent unemployed in the local labor market.

Do students in local labor markets with higher concentrations of sub-baccalaureate jobs take more CTE courses because their schools devote a larger share of their curricula to CTE courses? After accounting for the share of school course offerings dedicated to CTE courses in Model 2, the magnitude of the relationship is reduced by about 32% (change in coefficients is statistically significant); this suggests that part of the relationship between the local labor market and student CTE course-taking is due to differences in school course offerings. At the same time, adjusting for differences in CTE course offerings, a positive, statistically significant association between CTE course-taking and the percentage of local workers employed in sub-baccalaureate jobs persisted, on average ($p<.001$).

Table 3.5 presents the average marginal effects from a logistic regression predicting the association between the local labor market and the likelihood that a student will have taken a math course beyond Algebra II by the end of high school. Model 1 indicates that on average, a one percent increase in the number of local workers employed in sub-baccalaureate jobs is associated with a .4 percentage point decrease in the probability of taking a math course beyond Algebra II by the end of high school, independent of base-year academic, family, and school controls. To what extent do the differences in school course offerings we observed earlier play a role in these disparities in advanced math course-taking? In Model 2, adjusting for differences in the academic rigor of school math curriculum ($p<.001$) and the share of course offerings devoted to CTE courses ($p<.01$) reduces the association by about 75% and renders it non-significant.

Table 3.5. Average Marginal Effects from Logistic Regression Predicting Advanced Academic Math Course-Taking

	Model 1	Model 2	Model 3	Model 4
Local Labor Market				
% of workers employed in sub-baccalaureate jobs	-0.004*	-0.001	0.003	0.006
	(0.002)	(0.002)	(0.004)	(0.004)
Base-Year Controls				
Math achievement test score	0.007***	0.007***	0.017**	0.018***
	(0.001)	(0.000)	(0.005)	(0.005)
Math X % of workers employed in sub-baccalaureate jobs			-.0002*	-.0002*
			(0.000)	(0.000)
Parental Education (ref: no college degree)				
Two-year degree	0.031***	0.028**	0.032***	0.028**
	(0.009)	(0.009)	(0.009)	(0.009)
Four-year degree or higher	0.041	0.038	0.042	0.039
	(0.023)	(0.023)	(0.023)	(0.023)
School Resources				
School in 4th quartile for average parental education	0.027	0.015	0.026	0.014
	(0.018)	(0.017)	(0.018)	(0.017)
% Free/reduced-cost lunch (logged)	-0.016*	-0.010	-0.015	-0.010
	(0.008)	(0.007)	(0.008)	(0.007)
Per-pupil total expenditures, 2000-01	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
School Course Offerings				
School CTE offerings as % of total course offerings		-0.002*		-0.002*
		(0.001)		(0.001)
Academic rigor of math curriculum		0.004***		0.004***
		(0.001)		(0.001)
School AP/IB offerings as % of total academic course offerings		0.001		0.001
		(0.002)		(0.002)
N=11,560				

*** p<0.001, ** p<0.01, * p<0.05; Standard errors in parentheses.
Note: All models include state fixed-effects. Remaining models control for sex, race/ethnicity, family structure, family income, 12th grade enrollment status, 10th grade math course level, 10th grade academic GPA, 10th grade educational expectations, total # of courses taken, percentage of minority students in school, magnet school flag, vocational school flag, school size, # school courses offered, urbancity, student-teacher ratio, school course catalog provided, and percent unemployed in the local labor market.

Even though the main effect is non-significant, the relationship between the local labor market and student advanced academic course-taking may depend on whether students' are well-positioned to enroll in this coursework during the last few years of high school. To examine whether students' math achievement test score in 10th grade moderates the relationship between advanced math course-taking and the percentage of workers employed in sub-baccalaureate jobs, Model 3 shows an interaction term between the percentage of workers employed in sub-baccalaureate jobs and math achievement before adjusting for high school course offerings. This interaction term is negative and statistically significant ($p<.05$), indicating that the relationship between advanced math course-taking and math achievement was weaker in areas with higher concentrations of sub-baccalaureate jobs, net of tenth grade math course level and a host of other factors.

To facilitate the interpretation of this interaction, Figure 3.2a shows the estimated average marginal effects (y-axis) for students within each local labor market quintile (reference-1st quintile) at different points within the math achievement test score distribution, holding constant other factors controlled for in Model 3. P-values are obtained from the “margins” suite in Stata 13.0, which approximates p-values from standard errors using the Delta Method, a Taylor series approximation. The fifth quintile represents students who attend high schools in local labor markets with the highest concentrations of workers in sub-baccalaureate jobs and the first quintile, the reference group, represents those students who attend high schools in local labor markets with the lowest concentrations of these workers. Among students whose math achievement test scores fell within the 25th and 50th percentiles for the ELS:2002 sample of public high school students, we observe no statistically significant differences between students attending high schools in the 2nd-5th quintiles relative to students attending high schools in the 1st quintile. Yet, among students who scored in the 75th percentile on the math achievement test, we observe that students who attend high school in local labor markets with the highest shares of local workers employed in sub-baccalaureate jobs have about a 9 percentage point lower probability of taking an advanced math course by the end of high school relative to their counterparts in the first quintile, on average. This gap for the highest-achieving students—those scoring in the 90th percentile on their math test—is about 11 percentage points. Notably, these striking gaps are independent of a host of family, academic, and school factors.

Figure 3.2a. Advanced Math Course-Taking by Math Achievement Test Score and Local Labor Market Quintile (Without Controlling for School Course Offerings)

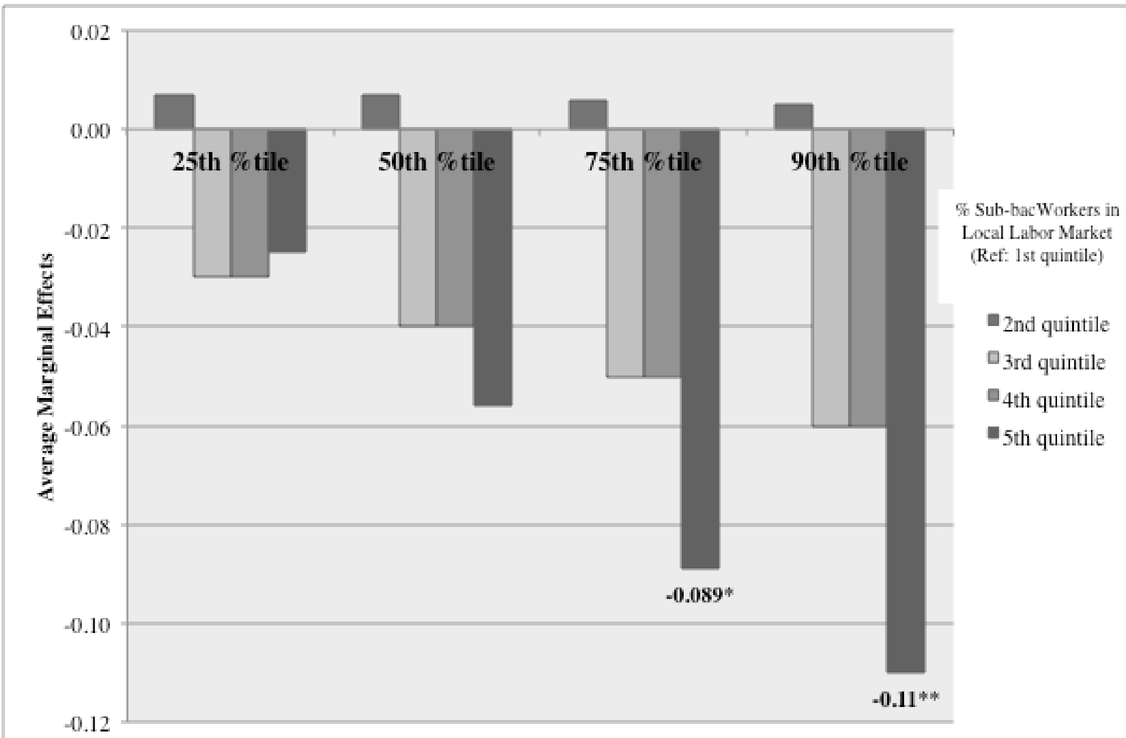
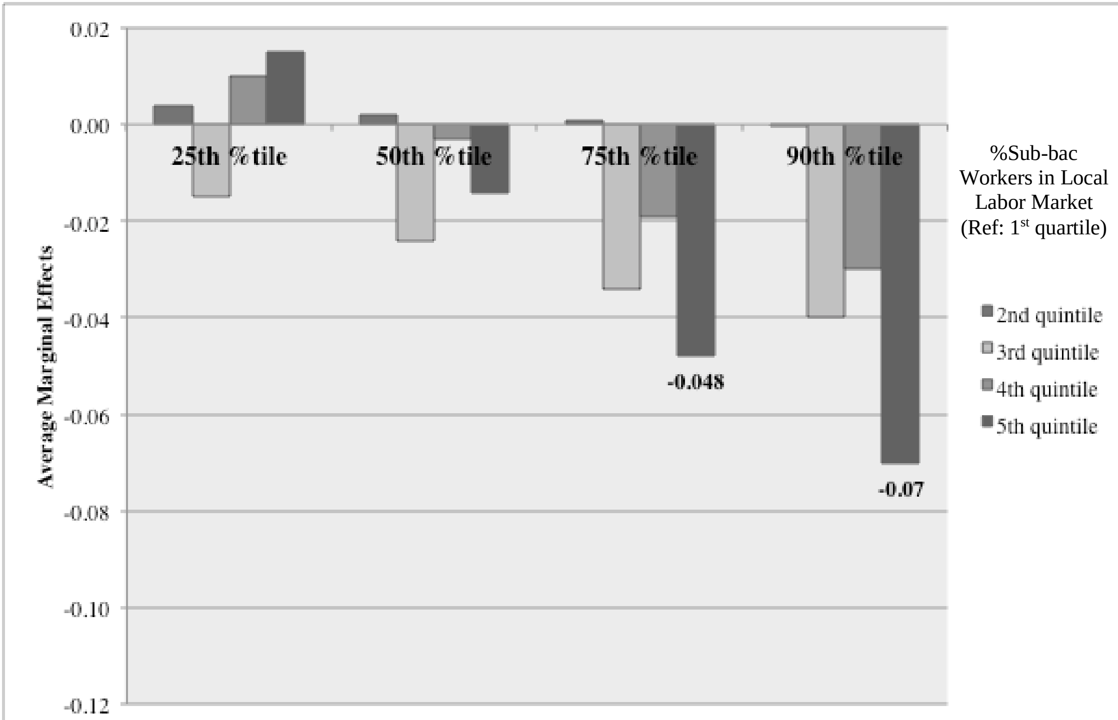


Figure 3.2b. Advanced Math Course-Taking by Math Achievement Test Score and Local Labor Market Quintile (Controlling for School Course Offerings)



To what extent are these higher-achieving students' lower odds of taking advanced academic math a function of their schools' weaker academic curricula? Figure 3.2b shows these same relationships after controlling for high school course offerings. The gaps in advanced academic course-taking observed in the previous graph are reduced and rended non-significant by almost half for students scoring within the 75th percentile and by about 35% for students scoring within the 90th percentile on their math achievement tests.

Discussion

The goal of this study was to investigate links between local labor markets, school course offerings, and student course-taking. Analyses of nationally representative samples of schools and students indicated that academic and CTE course offerings and student course-taking were stratified across local labor markets—a pattern that has received little direct empirical attention within the large body of research on course-taking stratification and students' differential opportunities to learn. The results suggest that the relationship between the percentage of local workers employed in sub-baccalaureate jobs and school course offerings is a function of both differences in school resources and curricular investments independent of resources, which underscores the importance of making this theoretical distinction (Roscigno et al. 2006). There is a parallel pattern for students, which suggests that the relationship between the local labor market and student course-taking is a function of both differences in course-taking options and course-taking decisions independent of available coursework options.

The results from the school-level analysis suggest that schools in local labor markets with higher concentrations of sub-baccalaureate jobs devote a larger share of their curricula to CTE courses and offer a less rigorous academic curriculum, partially because of differences in school resources. The results suggest that school differences in educational spending and average parental education help explain the association between the local labor market and CTE course offerings. Differences in average parental educational attainment appear to matter most for advanced academic course offerings. This finding is consistent with research suggesting that socioeconomically advantaged parents obtain educational advantages for their children (Lareau 1987; Lucas 2001), but it may also reflect administrators' disparate expectations of higher- and lower-SES student bodies. Overall, these findings suggest that the local labor market is related to students' opportunities to learn partially through its impact on school resources—linkages that prior studies have suggested (e.g., Roscigno et al. 2006) but have not directly observed.

However, the findings suggest that given similar resources, schools in local labor markets with higher concentrations of sub-baccalaureate jobs devote a larger share of their curricula to CTE courses and offer a weaker academic curriculum. This persistent relationship may be a function of schools investing in coursework that meets local labor market demands. While other work asserts that schools are "in the service of the economy" (Bartlett et al. 2002:9), these results suggest that schools may be in the service of the local economy and reveal a potential tension between local and national educational goals. Over the past thirty years, federal initiatives have pushed schools to prepare all students for college, with the ultimate goal of producing a globally competitive workforce. But this study's results suggest that schools in local labor markets with higher concentrations of lower-education/lower-skill jobs are more likely to offer courses that prepare students for labor in the *local* workforce. Historical research and case studies have noted explicit relationships between local economic interests and school curricula. The observed relationships in this study may also capture practical considerations that schools face. For example, even independent of school resources, schools in local labor markets that rely more heavily on sub-baccalaureate jobs may experience challenges attracting qualified advanced academic course teachers and have an easier time filling positions for CTE courses related to local industries.

Findings from the second part of the study indicated that students living in areas with higher concentrations of sub-baccalaureate jobs devote a larger share of their coursework to CTE courses. Results suggest that course-taking disparities are partially a function of differences in course offerings. Although results show a persistent significant relationship between the local labor market and CTE course-taking even independent of school course offerings, the magnitude of this relationship is small. This study can only speculate about mechanisms underlying a possible independent relationship between the local labor market and student CTE course-taking. The occupational structure of the local labor market may shape the type of work students perceive as feasible or valued (Morris 2008; Riegle-Crumb and Moore 2013). Additionally, these results could be a function of students making educational decisions based on their perceptions of the educational and skills requirements of the jobs in their communities (Bozick 2009; Walters 1984).

The study also found substantial disparities in advanced math course-taking across labor markets with greater and smaller shares of sub-baccalaureate workers, and these gaps were wider among higher-achieving students. Notably, this is the case even after controlling for differences in students' tenth-grade math course level, parental education, educational expectations, and other sociodemographic and academic indicators. Adjusting for differences in school course offerings—the academic rigor of math course offerings in particular— substantially reduced the strength of this relationship and rendered it non-significant. As discussed earlier, schools' weaker math curriculum may limit student course-taking directly through restricting their course-taking options and/or indirectly through providing more alternatives to academically challenging coursework (Lee, Smith and Croninger 1997; Powell, Farrar and Cohen 1985) or cultivating a weaker college-oriented “habitus” (McDonough 1997).

This finding indicates that the advanced academic course-taking opportunities of high-achieving students in local labor markets with greater concentrations of sub-baccalaureate jobs are constrained by their schools’ less rigorous math curricula. This pattern also suggests that areas with higher concentrations of sub-baccalaureate jobs may be a source of lost talent, at least from the standpoint of national labor needs in critical fields such as STEM. In addition, ancillary analyses indicated that the relationship between math test score and the local labor market does not statistically significantly differ by race/ethnicity, gender, or social class, suggesting that talented individuals from both privileged and marginalized groups face academic penalties from the relationship between the local labor market and high school course offerings in areas with higher concentrations of sub-baccalaureate jobs. Due to the strong relationship between advanced math course-taking and educational attainment, national efforts to increase the numbers of underrepresented and oppressed groups in universities and in critical high-skills fields may be undermined. At the same time, places with higher shares of sub-baccalaureate work may retain some of their brightest students to the extent that their lower levels of college-preparatory course-taking limit their chances of attending a four-year college.

Analyses in this study controlled for a host of factors related to local labor markets, school course offerings, and student course-taking; yet, it is possible that the observed relationships are a function of factors that these data cannot account for. Additionally, I expected, based on previous research, that the local labor market structure would shape school course offerings. However, it is possible that schools offer certain types of coursework as a way to attract specific industries. Future studies of data over time or instrumental variables may allow researchers to disentangle directionality among these complex relationships that are likely bi-directional and reinforcing.

Ultimately, this research raises questions related to enduring debates about the purpose of schooling and what schools should teach the nation's youth. Historically, politicians and business leaders have directed attention and often assigned blame to the school system during economic crises, asserting that schools have not adequately trained students for the skills required in the labor market (Bartlett et al. 2002). This line of discourse has become pronounced since the most recent economic recession. However, in contrast to the curricular reform efforts of the 1980s, which aimed to prepare all students for college, recent state-level initiatives aim to expand high school CTE courses in hopes of training students for existing jobs that do not require a four-year degree. Moreover, recent federal political discourse has invoked the German dual-education CTE system as an exemplar for the United States and lauded examples of local business-school alliances.

Are tight links between the local labor market, school course offerings, and student course-taking desirable? Is it beneficial or costly for schools and students in areas with higher concentrations of lower-education/lower-skill jobs to concentrate on courses that prepare them for local jobs and forego the kinds of academically challenging course offerings linked to four-year college going and the analytic skills increasingly required by the knowledge-based economy? Research documents a negative association between vocational course-taking and college attendance (Ainsworth and Roscigno 2005) and positive association of advanced math course-taking and four-year completion. Given the rising four-year college-wage premium and the increasing gulf between “good” and “bad” jobs (Kalleberg 2011), student and school investments in CTE courses at the expense of advanced academic courses may not be in the long-term economic or civic interests of students or their communities. Indeed, although CTE coursework may provide an initial buffer against unemployment (Arum and Shavit 1995), a recent study finds that the early adulthood employment advantages of taking more high school CTE courses and fewer general courses are “offset by less adaptability and thus diminished employment later in life” (Hanushek, Woessmann, and Zhang 2011:1). Having the cognitive skills to adapt to labor market vicissitudes is imperative in an information age in which workers must keep pace with rapidly-changing technology.

An emphasis on CTE coursework that is not complemented by a rigorous academic curriculum could lead to significant sacrifices in the long run for both local economies and students. The outcomes of high-achievers in local labor markets with higher concentrations of sub-baccalaureate jobs are more clear-cut. Schools in these communities delimit high-achieving students’ opportunities to take the advanced academic math courses that propel students through four-year colleges and develop the analytic skills increasingly demanded by jobs in today’s economy. This pattern stands in sharp relief to the American ideal of meritocracy and may also impede progress towards national goals, including filling talent shortages in high-skill field.

Chapter 4: Blue-Collar Communities and Occupations in the New Economy

Motivation

Heated debates have focused on whether training should emphasize vocational skills or promote a rigorous academic curriculum for over a century. As we attempt to regain economic vitality after the Great Recession, the debate is evident in the tension between the demands of the New Economy for a globally competitive, innovative workforce and training for pockets of good jobs in blue-collar occupations.

While a bachelor's degree is imperative for most good jobs in the New Economy—with the college-wage premium producing the growing chasm between "good" and "bad" jobs (e.g., Carnevale and Desrochers 2002; Hout 2012; Kalleberg 2011)—scholars and policymakers increasingly advocate for a re-emphasis on career and technical education (CTE) and mid-skill, sub-baccalaureate jobs as smart alternatives to those requiring a four-year college degree (Symonds, Schwartz and Ferguson 2011). However, compared to most jobs that require a baccalaureate degree, sub-baccalaureate jobs are more highly sex-segregated, and the best paying jobs exist within the male-dominated, blue-collar fields (Carnevale et al. 2011). Indeed, blue-collar jobs have been most touted as exemplars of sub-baccalaureate "good" jobs, exemplified at the highest-level by President Obama's incendiary statement, "But I promise you, folks make a lot more – potentially – with the skilled trades and manufacturing than with an art history degree."[3] Recent state legislation aimed at facilitating this sub-baccalaureate route has

[3] From President Barack Obama's speech on "Opportunity for All and Skills given at General Electric Waukesha Gas Engines Facility in Waukesha, WI on January 30, 2014. Transcript

garnered public media attention; these state- and local-level initiatives have bolstered and upgraded high school blue-collar training with assistance from blue-collar industries, with some states allowing these courses to satisfy math and foreign language academic requirements.

The following two chapters investigate whether an emphasis on blue-collar high school training in communities with existing blue-collar jobs benefits men *and* women. Academically rigorous high school training aimed to prepare all students for four-year college and professional jobs may benefit both men and women; however, given the gendered nature of blue-collar occupations, high school training related to local blue-collar jobs might only benefit men, if it benefits them at all. Blue-collar jobs often involve physically demanding, stereotypically male tasks that are associated with the greatest rewards and highest gendered exclusionary practices (Bielby and Baron 1986). Whereas baccalaureate-requiring professional and managerial jobs have become increasingly integrated (Cotter et al. 2004; England 2005), blue-collar occupations are as highly male-dominated and inaccessible to women today as they were in 1950 (Bergmann 2011). In addition, blue-collar apprenticeship training is largely blocked to women, and even women who obtain blue-collar jobs face hostile work environments and are relegated to lower-paying positions with limited upward mobility (O'Farrell 1999).

I take advantage of the local nature of schools to investigate the gendered effects of a tighter linkage between high school training and jobs in the community. Specifically,

---

available at https://www.whitehouse.gov/the-press-office/2014/01/30/remarks-president-opportunity-all-and-skills-americas-workers.

I focus on blue-collar communities—modern day “company towns”—which I define in terms of the concentration of local blue-collar workers. Research investigating connections between schools and communities has a rich tradition. However, since the 1960s, studies falling within both the status-attainment and social reproduction paradigms focus on individual-level predictors of disparities in occupational status. This research shifted from a conceptualization of schools as part of local communities to how they reproduce inequalities within the broader occupational structure and function to meet national needs (Arum 2000). Both before and after this shift, however, research that has considered how high school training and community characteristics jointly act to shape labor market stratification has paid little attention to gender.

Concomitant with the changing tide in academic research in the 1960s, policy initiatives from the *National Defense Education Act* (1958) to *Rising Above the Gathering Storm* (2007) emphasized the role of schools in meeting national labor market demands and producing a globally competitive labor force. However, the distribution of jobs requiring higher and lower levels of human capital—exemplified by the extremes of former manufacturing hubs and places driven by the high-tech, innovative sector— is more uneven than ever (Moretti 2013). Indeed, alongside initiatives like the Common Core State Standards that standardize academic curricula across schools are new legislative initiatives aimed at reviving specialized technical training, especially in areas where blue-collar jobs persist. Yet, current scholarly and public discourse related to whether high schools should promote vocational skills or a rigorous academic curriculum to prepare students for labor market success has been gender-neutral.

The remainder of this dissertation investigates how high school training in blue-collar communities shapes gender stratification in education and the labor market. In doing so, I apply a locally-focused, gendered lens to enduring debates about the type of high school training that meritocratically prepares all high school students for labor market success. Using the Educational Longitudinal Study of 2002 (ELS:2002), I investigate whether a tight coupling between high school training and the local labor market structures male and female (dis)advantages in high school, college, and labor force outcomes in the context of blue-collar communities. This chapter's results suggest a nexus between school curricula and local jobs in blue-collar communities that shapes gender inequality in ways that run counter to the dominant narrative of "the female advantage" and "rise of women" (DiPrete and Buchmann 2013). Overall, the following chapters suggest a local economic dimension of gendered opportunities for educational and occupational success, and I highlight schools—as gatekeepers to skills training and embedded within communities—as an important force in this stratification process.

Theory and Prior Work

Irrespective of whether or not they argue school sorting processes are fair and meritocratic, studies rooted in both status-attainment and reproduction paradigms have focused on how schools and schooling contribute to individual-level differences in the divisions of labor along class, gender, and racial/ethnic lines. Yet, an occupational division of labor also takes place at the geographic or spatial level in which types of industries and jobs are unevenly distributed across communities (Bauder 2001; Hanson and Pratt 1992; Herod 2001; Massey 1984). In other words, "workers are segmented not only by class, gender, or ethnicity but also by their place of residence" (Bauder 2001:40). Men's and women's opportunities for good and bad jobs vary across places that rely more or less on sex-segregated industries, and this intersection of the gender-segmented labor market and the spatial division of labor shapes gender inequality in the labor force across place (Gauchat, Kelly and Wallace 2012; Hanson, Kominiak and Carlin 1997; McCall 2001).

Whereas a rich literature investigates inequalities in the occupational division of labor as a function of schools' differential preparation of higher- and lower-status groups and unequal job opportunities, it has largely ignored the local nature of both schools and labor markets. Similarly, research investigating gender disparities in education outcomes has paid little attention to local labor market conditions, with only a few exceptions (Riegle-Crumb and Moore 2014; Werum 2002). Furthermore, although studies have considered the role of local economic opportunities in shaping between- and within-gender inequalities in labor market outcomes (Cotter et al. 1998; Gauchat, Kelly and Wallace 2012; McCall 2000; McCall 2001), this research has not considered how the high school educational experiences of young men and women across these communities may foreshadow gender inequality in the labor force. The current study examines gender stratification in education and the labor market by returning to an older sociological tradition that highlighted the embedded nature of schools within communities (Arum 2000). I examine gender stratification as a function of place and investigate how high school training related to local jobs shapes gender inequality in education and the labor force within the context of highly gendered local labor market opportunities.

I focus on young men's and women's educational and early labor market outcomes in communities that rely more heavily on male-dominated, blue-collar jobs. Taking advantage of the local nature of schools, I pay particular attention to whether schools—through offering curricula more oriented towards blue-collar jobs and less oriented towards college-going—benefit both men and women or reproduce gender stratification in the labor market. Indeed, schools are not only microcosms of society that train students for highly differentiated jobs demanded by the national economy; they are also microcosms of the communities they serve and, at least historically, have geared training to the skills demands of local jobs in ways that reinforce the gender-segmented labor market (Rury 1991; Werum 2002).

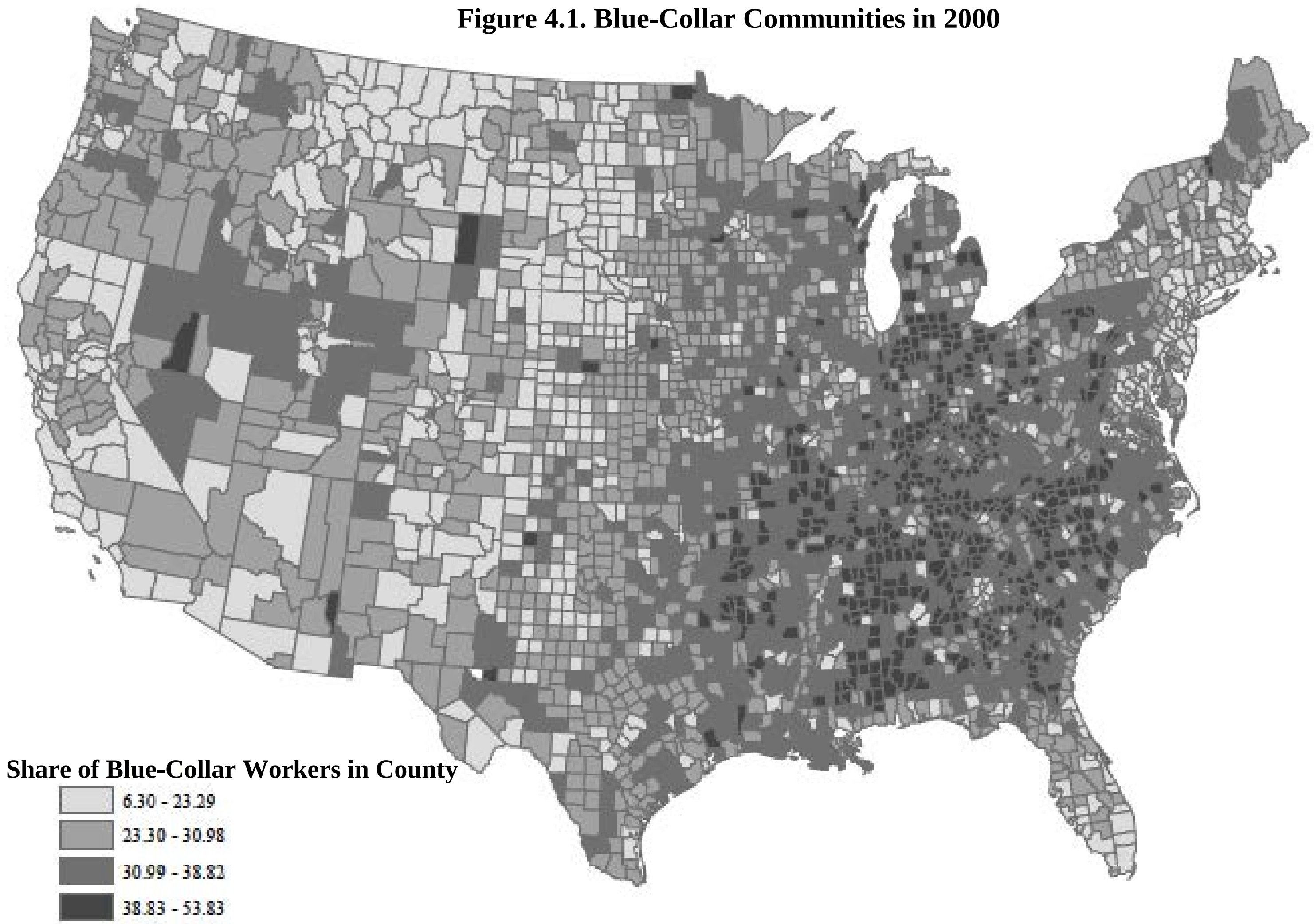
Blue-Collar Communities and Occupations

Blue-collar jobs played a crucial role in the financial and social lives of American families, helping develop and sustain a strong working-class and produce a powerful national economy through the mid-twentieth century. Places relying heavily on blue-collar jobs have inspired thick descriptions of the local, complex social and economic relationships (e.g., Heberle 1948; Kornblum 1974; Leggett 1968; Lewis 1987; Lynd and Lynd 1929; Walkowitz 1978) that primarily focused on racial/ethnic and class relationships. Like work investigating sex-segregation within blue-collar jobs (O'Farrell 1999; Padavic 1992; Reskin and Padavic 1988), studies investigating gender dynamics within blue-collar communities have paid attention to women's job preferences, hostile work environments, and employer-based sex discrimination (Connell 1990; Deaux and Ullman 1983; Rosen 1987). In addition, quantitative work has documented gender wage-gaps in local economies with heavier concentrations of manufacturing employment

(Gauchat, Kelly and Wallace 2012; McCall 2001). However, only one examination of gender in a blue-collar town to my knowledge has examined gendered processes prior to labor force entry; this ethnography—in sharp contrast to its counterparts—shed a positive light on women in blue-collar jobs and identified family socialization as a primary force underlying women "pioneers'" occupational choices (Walshok 1981). The current study departs from previous work by examining how potentially gendered educational opportunities in high schools within blue-collar communities shape gender stratification in education and work in early adulthood.

After almost a half-century of declines in blue-collar jobs, do blue-collar communities still exist in today's economy, and where are they located? Figure 1 shows a map of the concentration of blue-collar jobs at the county-level, using occupational information from the U.S. Census 2000. Counties with higher concentrations of blue-collar workers are darker and counties with lower concentrations of blue-collar workers are lighter. Counties with the greatest concentrations of blue-collar workers are in the Southeast and Midwest, with the West and Northeast serving as home to the fewest communities with high concentrations of these jobs. These regional patterns of the concentration of blue-collar communities are consistent with recent spatially-focused research that highlights the geographic divergence between places with high concentrations of high-tech, creative jobs and former manufacturing towns (Moretti 2013), increasing educational segregation across the U.S. (Domina 2006), and place-based stratification in opportunities for upward mobility and its determinants (Chetty et al. 2014)

Figure 4.1. Blue-Collar Communities in 2000



Note: Author's calculations from U.S. Census 2000. Data are classified with the natural breaks (Jencks) classification scheme provided in ArcGIS, which identifies cutoffs inherent within the data.

The following two chapters use ELS:2002 to investigate the case of economically isolated, blue-collar communities. I focus on those communities within the top quartile for the percentage of workers employed in blue-collar jobs, in which between one-third and one-half of workers hold jobs in blue-collar occupations. These economically isolated communities have a particular salience for gender given that almost 90% of blue-collar jobholders are men (Bose and Whaley 2001). Do these places and the schools that serve them interact to shape gender inequality in education and the labor force? Chapter 5 investigates high school training in blue-collar communities. Chapter 6 examines how high school training in blue-collar communities shapes males' and females' post-high school outcomes and whether it produces gender inequality in the labor force.

Chapter 5: High School Course Offerings and Males' and Females' Course-Taking in Blue-Collar Communities

Previous theory and research assert that the development of school curricula and distribution of knowledge are not neutral processes (Ainsworth and Roscigno 2005; Bowles and Gintis 1976; Oakes 2005). For example, Apple (2004:28) asserts that "the knowledge made available (and not made available) to students" must be problematized through examining the "linkages between economic and political power and school curricula." Historically, local economic interests and powerful business leaders shaped local schools' curricular orientations. Tight linkages between local blue-collar jobs and blue-collar vocational training in particular were forged as early as the late nineteenth century in industrial towns (Bartlett et al. 2002).

Yet blue-collar training has historically been aimed at and reserved for men (Rury 1991; Werum 2002). An early example of this was when the federal government provided vocational education funds for industrial training programs in manufacturing areas with the goal of employing men during the Great Depression. School boards in Boston and other industrial centers in the Northeast built all-male mechanical arts schools while their West Coast counterparts offered a more general academic curriculum (Rury 1991). In each of these examples, blue-collar training was directed at men while women's technical training was limited to often poorly funded home economics training or lower-status textile and factory work. In this way, men's and women's educational opportunities at the dawn of the 20th century "were shaped by the regional division of labor dictated by the North American economy" (Rury 1991:9).

In today's economy, the majority of sub-baccalaureate jobs that pay good wages are male-dominated (Carnevale et al. 2011), the returns to education are higher for women than for men (DiPrete and Buchmann 2006), and striking wage gaps exist among women with and without a college degree (McCall 2000, 2001). Thus, if schools in blue-collar communities offer greater numbers of blue-collar related courses and fewer advanced academic courses relative to schools in non-blue-collar communities, this gendered curriculum would likely have significant implications for gender stratification in education and the labor market. The current chapter investigates whether the curriculum of high schools in blue-collar communities emphasizes blue-collar training and de-emphasizes the academically rigorous coursework that encourages college enrollment. Next, I will examine blue-collar and advanced math course-taking differences among males and females attending schools in communities that vary in their concentrations of blue-collar workers. Given the results from the previous chapter, I will consider whether the greatest disparities in advanced academic course-taking across these communities occur among high-achievers—those who are poised to take these courses by the end of high school. Finally, I will examine the role of high school course offerings in mediating any observed course-taking differences.

Background

High School Course Offerings

To what extent might a gendered curriculum related to local jobs exist in today's blue-collar communities? Some work suggests that a relationship between local economies and school curriculum may persist today. For example, Roscigno et al.

(2006:2124) speculate that administrators and schools boards may "invest resources in a manner consistent with the perceived needs of the local population and local labor markets" as an explanation for differences in educational investments between urban and rural schools, including Advanced Placement (AP) course offerings. In other words, schools may emphasize particular types of coursework as a way of "training the future local labor pool"—as Ainsworth and Roscigno (2005:266) intimate but do not empirically examine. Indeed, Oakes and Guitton (1995), in a case study of high school tracking, note that a major goal of the district was to offer vocational courses that aligned with local economic demands.

Business-school partnerships and economic stakeholders' influence on school boards and educational task force teams may also continue to shape what schools teach (Ray and Mickelson 1990; Shea, Kahane and Sola 1990). In fact, many states in the South and Midwest are proposing or have passed legislation allowing local industries—many in blue-collar areas—to design high school courses that teach students job-related skills. For example, several states, including Michigan and Texas, have relaxed academic requirements to grant students greater flexibility in taking industry-designed courses, many of which are blue-collar related such as construction, welding, and HVAC courses. In addition, apprenticeship programs similar to the German model are regaining popularity as avenues to connect students with these local blue-collar job opportunities and training, such as "Youth Apprenticeship Carolina" in South Carolina, "Urban Skilled Trades Connection" in Wisconsin, and the "JumpStart" program in Louisiana.

Gender and High School Course-Taking

However, if schools in blue-collar communities offer fewer advanced academic courses, both males' and females' academic course-taking may be influenced by these course-taking options. The relationship between school course offerings and student course-taking may be direct if schools offer fewer academic courses or if a school's emphasis on vocational courses translates into fewer academic electives. In addition, studies find support for the constrained curriculum hypothesis, or the idea that students are less likely to take academically rigorous courses in schools that provide more alternatives to academically rigorous courses (Lee, Smith and Croninger 1997; Powell, Farrar and Cohen 1985). Finally, research suggests that weaker and stronger academically rigorous curricula cultivate different school climates that shape course-taking and post-secondary choices (Legewie and DiPrete 2014; McDonough 1997). The prevalence of male-dominated, blue-collar professions in a community may shape differences in students' blue-collar and college-preparatory course-taking through institutional sorting, access to knowledge about possible career pathways, local scripts about gender appropriate work, and the kinds of knowledge male and female students view as valuable for their futures. I rely on past research to describe these potential mechanisms in greater detail below.

For example, Ainsworth and Roscigno (2005) find that—net of other factors—there is an unequal distribution of males and females, whites and racial/ethnic minorities, and lower- and higher-SES students across low-wage service, blue-collar and agricultural courses that reflect these groups' unequal representations in analogous employment sectors. The authors suggest that this is a function of school "sorting mechanisms"

(2005:268), whereby schools "steer" or "funnel" students into different types of vocational course-taking. Yet the extent to which schools sort males and females into different types of coursework may vary by the concentration of male-dominated blue-collar jobs in the community. For example, if teachers and counselors aim to prepare students for job opportunities in the local labor market (Oakes and Guiton 1995), they may guide males into male-stereotypical vocational coursework more often in areas with a greater abundance of blue-collar jobs. Thus, males in blue-collar communities enroll in more blue-collar courses than both their female peers and male counterparts in non-blue-collar communities.

Students also exercise freedom in coursework selection only within the constraints of available course offerings (Oakes and Guiton 1995). Research suggests that the occupational structure of the local labor market informs individuals about available career options and shapes gendered scripts about appropriate work for men and women (Riegle-Crumb and Moore 2013; Morris 2013; Hanson, Kominiak, and Carlin 1997). For example, Riegle-Crumb and Moore (2013) suggest that communities with higher proportions of women in STEM professions expand the kinds of occupations female students perceive as possible for themselves. A qualitative study suggests that male students living in a town that had historically relied on the coal industry viewed academic success as feminine pursuits and associated masculinity with working in a manual labor job after high school (Morris 2008). Moreover, Morris (2012:83) found that boys in this town "not only gravitated to manual labor and away from book knowledge because of male role modeling but also because they perceived it to be better, more important, and more useful."

Research also suggests that high school students may make educational decisions based on the educational and skill requirements of local jobs (Bozick 2011; Bozick and Deluca 2011; Walters 1984; Werum 2002). Yet what males and females perceive as "available" jobs may be different in communities with higher proportions of sex-segregated jobs. Studies show that, although many women prefer the higher wages and security of blue-collar jobs to low-wage service jobs, discriminatory institutional hiring and training practices effectively exclude women from these jobs even when they share similar levels of education and job-relevant skills (Bergmann 2010; Bielby and Baron 1986; Glass 1990; Roscigno, Garcia and Bobbitt-Zeher 2007; Tomaskovic-Devey 1993; Tomaskovic-Devey and Sheryl Skaggs 2002). These gendered opportunities in blue-collar communities may discourage young women from taking blue-collar courses.

Although I cannot adjudicate between these aforementioned potential mechanisms, if schools in blue-collar communities offer greater numbers of blue-collar courses, it is reasonable to expect that only males' blue-collar course-taking may be shaped by schools' blue-collar course offering. At the same time, if schools in blue-collar communities offer fewer advanced academic courses, both males' and females' academic course-taking may be influenced by these course-taking options. Given the results from in Chapter 3, I will also investigate whether the greatest differences in advanced math course-taking between students in blue-collar and non-blue-collar communities occurs among higher-achievers.

Research Questions

This chapter addresses the following research questions:

1) Do schools in communities with higher concentrations of blue-collar workers offer greater numbers of blue-collar courses and fewer numbers of academically rigorous courses than schools in communities with lower concentrations of blue-collar workers?

2a) Do males and females in communities with higher concentrations of blue-collar workers take greater numbers of blue-collar courses and have lower odds of taking advanced academic courses relative to their peers in communities with lower concentrations of blue-collar workers? 2b) To what extent are disparities in males' and females' blue-collar and advanced academic course-taking a function of differences in schools course offerings across these communities?

3) Is the relationship between advanced academic course-taking and the share of blue-collar workers in the community moderated by student achievement levels?

Measures

Blue-Collar Communities

The independent variable of interest is measured by the percentage of employed civilians over age 16 in the county of the school working in blue-collar occupations in the 2000 Census. The 2000 Census classifies occupational groups based on the 2000 Standard Occupation Codes, and I use two-digit major occupation groups to characterize blue-collar occupations. Following Farley and Haaga (2005), among others, blue-collar occupations are defined as the following major occupation groups: construction and extraction; production; transportation and material moving; and installation, maintenance, and repair. For all analyses, this variable is transformed into quartiles, and I refer to counties in the 4th quartile as "blue-collar communities" and those in the 1st quartile as "non-blue-collar communities." Quartiles were constructed using the distribution of ELS students attending public schools in counties that vary in their concentrations of blue-collar workers. As a robustness check, I defined quartiles using the national distribution of blue-collar workers across counties and obtained substantively similar results. In addition, results using a continuous indicator of the share of blue-collar workers within counties yield identical substantive interpretations. The average percentage of blue-collar workers in these communities is about 17% in the 1st quartile, 22% in the 2nd quartile, 26% in the third quartile, and 36% in the 4th quartile ("blue-collar communities").

Blue-Collar and Advanced Math Coursework

School Course Offerings. I attempt to capture the blue-collar emphasis and academic rigor of schools within blue-collar communities with blue-collar, AP/IB, and advanced math course offerings, measured as the number of a school's course offerings falling within each category and identified in the course catalogs collected by NCES. Blue-collar courses include those in precision production, industrial arts, mechanics and repair, construction trades, and transportation and material. Blue-collar and AP/IB course offerings are logged to account for a skewed distribution. All analyses employing the course offering variables also include a control for the total number of courses offered by the school to account for variation in number of courses offered between schools. Results measuring blue-collar and academic course offerings as a percentage of total courses offered yield consistent results.

Student Course-taking. To assess the degree to which respondents' high school coursework relates to high school course offerings and to blue-collar work, I constructed parallel measures of student course-taking. Blue-collar courses are defined in the same way as for the blue-collar course offerings variable. This variable is logged to account for a skewed distribution. Advanced math course-taking is a dichotomous measure indicating whether a student attempted a math course beyond Algebra 2 by the end of high school.

Weighted descriptive statistics for student course-taking by gender and blue-collar quartile are presented in Table 5.1. We observe that males and females in blue-collar communities are less likely to take a math course above Algebra 2 by the end of high school relative to their counterparts attending high school in areas with lower concentrations of blue-collar workers. Specifically, about 44% of females from blue-collar communities take an advanced math course by the end of high school compared to 58% of females in non-blue-collar communities. Overall rates of advanced math course-taking are lower for males, but the gaps in course-taking across these communities are similar to those found for females.

Table 5.1. Weighted Means and Proportions for Course-Taking, By Sex and Blue-Collar Quartile

	Males				Females			
	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile	1st Quartile	2nd Quartile	3rd Quartile	4th Quartile
Math above Alg 2 by 12th grade	0.51	0.45	0.40	0.38	0.58	0.48	0.46	0.44
# Blue-Collar Courses (SD)	1.12 (1.85)	1.41 (2.18)	1.50 (2.24)	2.12 (2.89)	0.21 (.63)	0.31 (.82)	0.20 (.70)	0.35 (1.00)
Logged (SD)	0.50 (.63)	0.60 (.71)	0.62 (.70)	0.82 (.81)	0.12 (.31)	0.17 (.39)	0.11 (.31)	0.18 (.43)
	N=5730				N=5,860			

Analytic Plan

To examine the association between the occupational structure of the local labor market and school course offerings, I use Ordinary Least Squares (OLS) regression to predict the relationship between the percentage of local workers employed in blue-collar jobs and the amount of blue-collar, advanced academic math, and AP/IB school course offerings. Because this relationship between the local labor market indicator and blue-collar and advanced academic math course offerings is non-linear, a quadratic term is included to more accurately model its functional form. In ancillary analyses, blue-collar and AP/IB course offerings were measured as count variables using Poisson, negative binomial, and zero-inflated negative binomial (10% of schools offer no AP/IB courses) regressions. Results across these specifications yield substantive interpretations identical to those presented.

The second research question investigates whether the high school training of males and females in blue-collar communities is geared more towards blue-collar training and less towards academically rigorous coursework, paying close attention to the role of high school course offerings in mediating any observed course-taking differences. I use Ordinary Least Squares (OLS) regression to predict the number of blue-collar courses (logged) that students take during high school. Results from negative and zero-inflated binomial regressions produce substantive interpretations identical with those presented.

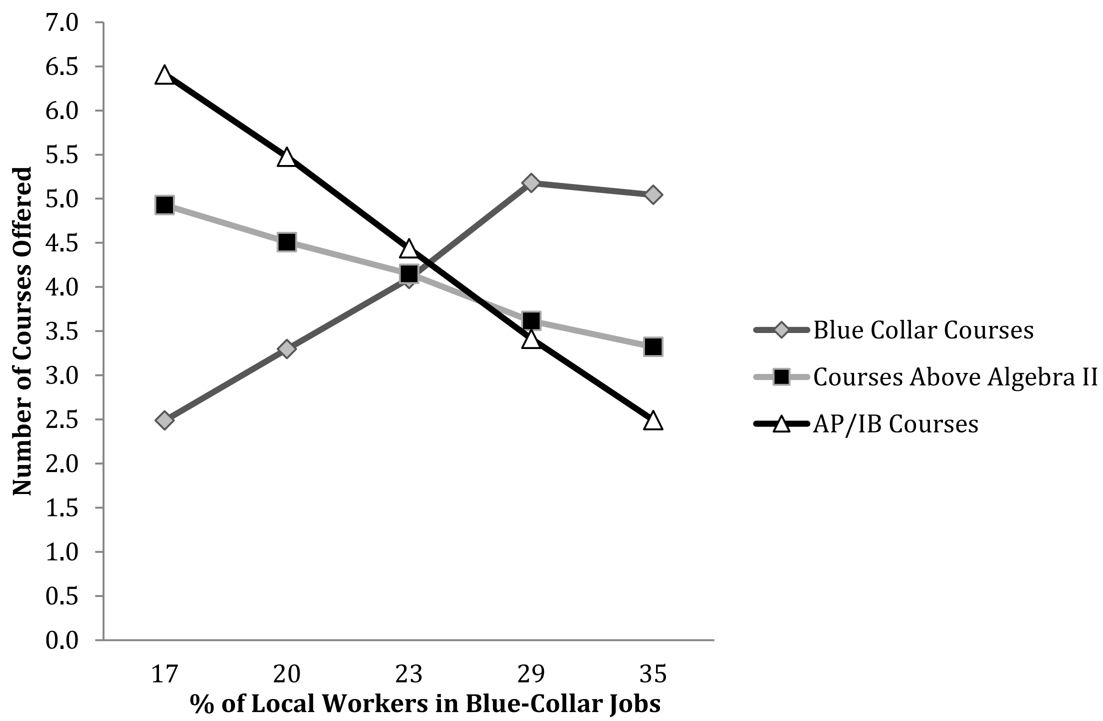
Logistic regression is used to predict students' probability of taking an advanced math course by the end of high school. Full tables are available in Appendix C. Because blue-collar course-taking is highly sex-segregated, models are estimated separately by gender. In ancillary analyses, I pool models to test for between-gender differences within blue-collar communities.

Results

Blue-Collar and Advanced Academic High School Course Offerings

The first goal of this study is to examine whether schools in blue-collar communities offer greater numbers of blue-collar courses and fewer numbers of academically rigorous courses. Figure 5.1 shows the predicted number of course offerings calculated from the full model of the school-level regression analyses reported in Appendix C. The y-axis represents the number of courses offered and the x-axis represents the percentage of workers in the county employed in blue-collar jobs. A positive relationship is observed between the percentage of workers employed in blue-collar jobs in the community and blue-collar course offerings ($p<.001$). Comparisons will be drawn between communities with 17% and 35% of workers in blue-collar jobs, representing approximately the average percentage of blue-collar workers in the 1st and 4th quartiles respectively. Schools that are otherwise average on demographic controls that serve communities in which 35% of local workers are employed in blue-collar jobs are predicted to offer a little over five blue-collar courses compared to about two and a half blue-collar courses in schools serving communities in which about 17% of workers are employed in blue-collar jobs. The regression analysis (Table 5.1 in Appendix C) shows a negative and statistically significant quadratic term, suggesting that the strength of this positive relationship diminishes at the upper-end of the distribution for the percentage of workers employed in blue-collar jobs. This may suggest a ceiling effect for the percentage of vocational courses schools can feasibly offer while still meeting state high school graduation requirements. The percentage of workers employed in blue-collar jobs is negatively associated with the number of math courses offered beyond Algebra II ($p<.01$) and with the number of AP/IB courses offered ($p<.001$). Interestingly, schools in communities where 35% of workers are employed in blue-collar jobs are predicted to offer almost three more blue-collar courses than AP/IB courses, whereas schools serving communities with the lowest concentrations of these workers are estimated to offer four more AP/IB courses than blue-collar courses.

Figure 5.1 The Relationship between High School Training and the Share of Local Blue-Collar Workers



Median: 23.5;

Blue-Collar Course-Taking

Model 1 in Table 5.2 estimates males' blue-collar course-taking and shows that, on average, male students in blue-collar communities tend to take more blue-collar courses in high school than their male peers in communities with the smallest share of blue-collar jobs ($p<.01$), net of sociodemographic, academic background, school, and labor market controls. Specifically, male students in blue-collar communities take about 24% more blue-collar courses than their male peers in communities with the smallest share of blue-collar jobs, on average. In Model 2, blue-collar and academic school course offerings are introduced. The number of blue-collar courses offered by schools is positively and statistically significantly associated with the number of blue-collar courses males take. Adjusting for differences in course offerings across schools reduces the relationship between the local labor market and blue-collar course-taking by about one-third, suggesting that male students in blue-collar communities take more blue-collar courses partially because they attend schools that offer greater numbers of blue-collar courses.

Table 5.2. Coefficients from OLS Regression Predicting # of Blue-Collar Courses Taken (logged)

	Males		Females	
	Model 1	Model 2	Model 1	Model 2
% County Blue Collar Workers				
(ref: 1st Quartile)				
2nd Quartile	0.091	0.078	0.047	0.044
	(0.050)	(0.048)	(0.025)	(0.026)
3rd Quartile	0.116*	0.060	-0.003	-0.019
	(0.058)	(0.056)	(0.022)	(0.023)
4th Quartile	0.240**	0.166*[a]	0.043	0.015
	(0.069)	(0.070)	(0.036)	(0.036)
Course Offerings				
# BC courses offered (logged)		0.148***		0.022*
		(0.022)		(0.011)
# AP/IB offered (logged)		-0.048		-0.032
		(0.031)		(0.017)
# Advanced math offered		0.004		-0.003
		(0.010)		(0.004)
10th grade math achievement test scor	-0.006***	-0.005***	-0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Observations	5,730		5,880	

***** p<0.001, ** p<0.01, * p<0.05**

Note: All models control for: parent education, family structure, family income, 9th grade GPA, 9th grade math course level, transfer status, school % free/reduced lunch, school percent minority, magnet school status,vocational school status, urbanicity, district per pupil expenditures, county % unemployed, county % serivce, and state fixed-effects. Model 2 also controls for whether the school provided a course catalog, and # of courses offered by the school.

In contrast to the findings for males, Model 1 for females' blue-collar course-taking shows that female students in blue-collar communities do not take significantly more blue-collar courses than their female peers in communities with the smallest share of blue-collar jobs, on average and net of background controls. In Model 2, I introduce school course offerings and observe a positively and statistically significant relationship between blue-collar course offerings and females' blue-collar course-taking, although this relationship appears weaker for females than for males. Ancillary analyses not shown here indicated that the gap in blue-collar course-taking between male and female students in blue-collar communities is significantly larger than the gap between male and female students in communities with the smallest share of blue-collar jobs, suggesting greater gender stratification in these gender-typed courses in blue-collar communities. Ancillary analyses also indicated no statistically significant interaction between math achievement test score and the share of local workers in blue-collar jobs for male or females.

Advanced Math Course-taking

Table 5.3 presents the average marginal effects from logistic regressions for males and females estimating the likelihood of taking an advanced math course (above Algebra 2) by the end of high school, conditioning on base-year sociodemographic, academic, school, and local labor market controls. Model 1 for males' advanced math course-taking shows that on average the probability that male students in blue-collar communities take advanced math by the end of high school is about 9 percentage points lower than that of their male peers in communities with the smallest share of blue-collar jobs. I control for school course offerings in Model 2, which slightly reduces the coefficient for males in blue-collar communities but does not explain their disadvantage. In particular, the academic rigor of schools' course offerings (number of AB/IB offered) is positively related to males' probability of taking an advanced math course.

Table 5.3: Average Marginal Effects from Logistic Regression Predicting Advanced Math Course-Taking

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
% County Blue Collar Workers						
(ref: 1st Quartile)						
2nd Quartile	-0.001	-0.003	-0.000	-0.032	-0.033	-0.030
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
3rd Quartile	-0.077**	-0.061*	-0.077**	-0.072*	-0.056	-0.069*
	(0.028)	(0.027)	(0.028)	(0.030)	(0.030)	(0.030)
4th Quartile	-0.087**	-0.079**	-0.086**	-0.087*	-0.060	-0.082*
	(0.031)	(0.031)	(0.031)	(0.036)	(0.036)	(0.036)
10th grade math achievement test score	0.009***	0.009***	0.009***	0.010***	0.010***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
% Blue-Collar Workers X 10th grade math test score (ref: 1st quartile)						
2nd Quartile			-.003*			0.004*
			(.001)			(.002)
3rd Quartile			-.002			-.003
			(.001)			(.002)
4th Quartile			-0.004*			-.005**
			(.001)			-0.002
Course Offerings						
# BC courses offered (logged)		-0.007			-0.008	
		(0.009)			(0.011)	
# Advanced math offered		0.009			0.017**	
		(0.012)			(0.006)	
# AP/IB offered (logged)		0.025***			0.037**	
		(0.005)			(0.013)	
Constant						
Observations		5,700			5,860	

*** p<0.001, ** p<0.01, * p<0.05

Note: All models control for: parent education, family structure, family income, 9th grade GPA, 9th grade math course level, transfer status, school % free/reduced lunch, school percent minority, magnet school status, vocational school status, urbanicity, district per pupil expenditures, county % unemployed, county % service, and state fixed-effects. Model 2 also controls for whether the school provided a course catalog and # of courses offered by school.

In the previous chapter, the greatest disparities in advanced academic course-taking across local labor markets were seen among higher-achieving students. Model 3 introduces an interaction term between math achievement test score and blue-collar labor market quartiles to examine whether the relationship between math test score and advanced math course-taking differs for males attending schools in blue-collar communities and non-blue-collar communities. We observe a statistically significant and negative interaction between math achievement test score and attending high school in a blue-collar community, indicating that math test score is not as strongly predictive of taking an advanced math course by the end of high school for males in blue-collar communities as it is their counterparts in non-blue-collar communities. Ancillary analyses indicate that statistically significant differences in math course-taking across these communities only exist among males with test scores at the 50th percentile or above for the ELS:2002 cohort. Specifically, the probability of taking advanced math by the end of high school is about 17 percentage points lower for otherwise average males in blue-collar communities who scored in the 90 percentile on the math achievement test compared to similarly performing males in non-blue-collar communities; this gap is about twice the size as it is for males scoring in the 50% percentile on the math achievement test. Course offerings appear to play only a small role in reducing these course-taking disparities.

Turning now to females' advanced math course-taking, Model 1 shows that female students in blue-collar communities are also about 9 percentage points less likely to take an advanced math course compared to their female peers in communities with the smallest share of blue-collar jobs. Adjusting for differences in school course offerings in Model 2—specifically the academic rigor of schools' math curriculum—reduces the magnitude of the gap in advanced math course-taking between females students in blue-collar and non-blue-collar communities by about 30% and renders it non-significant.

Model 3 introduces an interaction term between math achievement test score and the blue-collar labor market quartiles. Similar to males, we see a weaker relationship between math achievement scores and advanced math course-taking for females attending high school in blue-collar communities. Again, ancillary analyses indicate that these gaps between females from blue-collar and non-blue-collar communities are statistically significant only for math test scorers at the median or above for the ELS:2002 cohort. The size of the gaps are striking, ranging from 9 percentage points for math test scorers in the 50th percentile to 19 percentage points for those scoring in the 90th percentile. Course offerings appear to matter most for females with average math test scores, reducing the differences in course-taking among this group by about 30% and rendering the gap non-significant. Among the highest math achievers, accounting for differences in course offerings between schools in blue-collar and non-blue-collar communities reduces the association by about 15%; however, the gap is still statistically significant.

Conclusion

The results from this chapter indicate that blue-collar course offerings facilitate male high school students' blue-collar course-taking in blue-collar communities, but also suggest that they take greater numbers of blue-collar courses relative to their counterparts even independent of coursework opportunities at their schools. However, these results suggest that females do not enroll in courses related to the male-dominated blue-collar jobs in their communities any more than their peers in non-blue-collar communities, on average. As discussed earlier, this may be due to institutional sorting practices of males and females into gender-typical coursework (Ainsworth and Roscigno 2005). The practice of disproportionately encouraging males to take blue-collar courses may be especially pronounced in schools with higher concentrations of these highly sex-segregated jobs. These blue-collar course-taking disparities by gender that appear heightened in blue-collar communities may also be a function of local norms surrounding gender appropriate work and gender differences in the kinds of career skills students perceive as worthy of investment.

Results indicate that average- and higher- achieving males and females in math in blue-collar communities were less likely to take an advanced math course by the end of high school than their peers in non-blue-collar communities. This pattern is concerning given research showing that taking a course beyond Algebra II in high school is one of the strongest predictors of college-going and completion (Adelman 2006). Accounting for the weaker academic focus of schools in blue-collar communities did little to explain the advanced course-taking disparities among males. To the extent that students base educational decisions on the educational and skill requirements of local jobs (Bozick 2010), these young males' course-taking decisions may be due to the greater abundance of sub-baccalaureate, often well-paying jobs in the community. Gender socialization processes may also play a role. For example, Morris (2012) found that males in a blue-collar community linked academic pursuits with femininity.

Of great concern are the results suggesting that talented young women from blue-collar communities are less likely to take a math course beyond Algebra II than their counterparts in non-blue-collar communities. In contrast to males, course offerings appeared to play a role in these disparities. Ancillary analyses indicated that adjusting for course offerings mattered most for young females with average math test scores—those females who may be within the margins of attending a four-year college. Few females in blue-collar communities are among the very highest achievers. Indeed, the data indicate that only 19% of females attending schools in blue-collar communities have 10th grade math test scores that fall within the top quartile among the sample of ELS:2002 public high school students, whereas 34% of females in communities with the lowest shares of blue-collar workers have math test scores that fall within the top quartile. Given that course offerings appear to be more strongly related to the course-taking of average-achieving girls, the link between high school course offerings and advanced math course-taking may have consequences for a substantial proportion of females in blue-collar communities.

In today's economy, research finds that a four-year college degree is linked to the greatest economic (and non-economic) returns for women (DiPrete and Buchmann 2006). Thus, it is possible that high school training in blue-collar communities may foster—or at least not impede—a school-to-well-paying work link for males in blue-collar communities. However, because there are fewer opportunities for well-paying sub-baccalaureate jobs for women, young women who attend high school in blue-collar communities may face labor market penalties. The results from this chapter suggest a gendered school curriculum within blue-collar communities that emphasizes blue-collar coursework; however, it de-emphasizes academically rigorous course offerings that predict four-year college-going, both through its relationship with academic course-taking and the potential "habitus" or culture it fosters. Are males and females who acquired high school training in blue-collar communities less likely to attend a four-year college than their counterparts from non-blue-collar communities? If so, do both males and females suffer labor market consequences in early adulthood, or does high school training in blue-collar communities result in the greatest penalties for women? The final chapter of this dissertation examines how high school training in blue-collar communities shapes males' and females' post-high school destinations and labor market outcomes in early adulthood.

Chapter 6: Manufacturing Gender Inequality in Early Adulthood: High School Training in Blue-Collar Communities

High school course-taking sets the stage for students' postsecondary and labor force outcomes. Advanced academic coursework, in advanced math in particular, is the most powerful predictor of attending a four-year college and completing a bachelor's degree (Adelman 2006). Moreover, an academically rigorous curriculum may shape students' postsecondary pathways even independent of their course-taking through fostering a college-going culture (McDonough 1997). With respect to CTE course-taking, research finds that males' overrepresentation in blue-collar employment can be traced back to and is partially explained by their disproportionate representation in blue-collar high school vocational coursework (Ainsworth and Roscigno 2005). Thus, high school training in blue-collar communities observed in the last chapter may foreshadow college-going and work disparities between men and women in these communities and among men and women across blue-collar and non-blue-collar communities. This chapter examines whether high school training in blue-collar communities shapes gender stratification in post-high school destinations and in early adulthood labor market outcomes. Below, I draw from research on school-to-work links and investigate gender disparities in wages across occupations for a Millennial cohort to better understand why differences in high school training may shape gender inequalities in the transition to college and the labor market.

Vocational Education and School-to-Work Transitions

The 1917 Smith-Hughes Act marked the first federal legislation concerning vocational education, supplying schools with funds to offer programs in industrial arts, home economics, agriculture, and other non-professional training. The Act represented federal endorsement of the use of schools to supply a trained workforce and was an attempt to address the accusations of economic stakeholders, like the National Association of Manufacturers, that schools were failing to fulfill this function (e.g., Kantor and Tyack 1982; Hayward and Benson 1993; Lewis and Cheng 2006). Federal laws since the Smith-Hughes Act were borne out of similar national economic concerns and echoed the idea that vocational education improved the employment outcomes of non-college bound students.

More recently, the Carl D. Perkins Act was re-authorized in 2006, with the goal of strengthening school-to-work linkages and linking CTE coursework to the academic skills required in the knowledge-based economy (Hayward and Benson 1993; Bozick 2013). Additionally, policymakers have been specifically advocating blue-collar training for blue-collar jobs. Recent state legislation aimed at facilitating this sub-baccalaureate route has garnered public media attention. These state- and local-level initiatives have bolstered and upgraded high school blue-collar training with assistance from blue-collar industries, with some states allowing these courses to satisfy math and foreign language academic requirements. The idea that blue-collar training will pay off in the labor market was expressed even at the highest-levels when President Obama asserted that the skilled trades can be more lucrative than art history degrees in a speech at the General Electric Waukesha Gas Engines Facility.

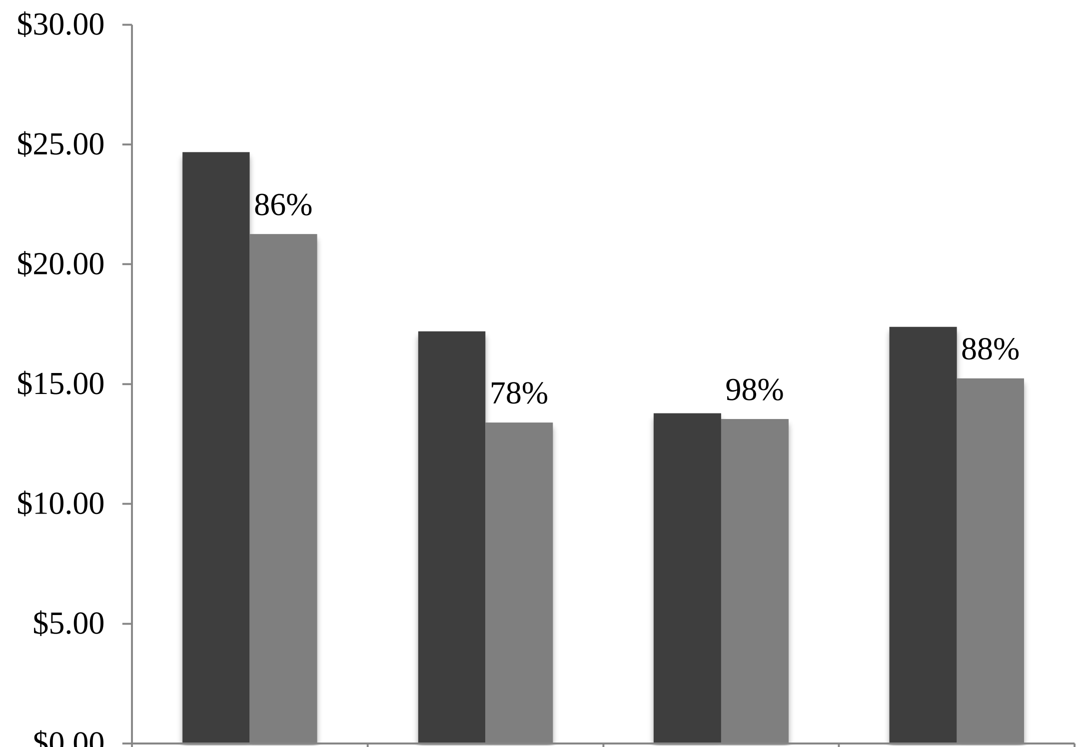
The implication of these state policies and recent discourse is that blue-collar training facilitates transitions to well-paying, blue-collar jobs for all students. Indeed, research finds that vocational work in general increases earnings and the odds of finding employment in a skilled job (Arum and Shavit 1995; Bishop and Mane 2004; Rumberger and Daymont 1984; Shavit and Muller 2000). In general, these studies and others that conceptualize and advocate vocational high school education as a route to acquire labor market skills rely on functionalist and human capital assumptions about the link between schooling and occupational attainment. Specifically, these studies assume that vocational courses teach students skills that will pay off in the labor market (see Ainsworth and Roscigno 2005; Arum and Shavit 1995), especially when there is a match between the type of vocational training and type of job (Bishop 1989). Other research questions the assumptions underlying these studies and the benefits of vocational education for all students. For example, Ainsworth and Roscigno (2005) demonstrate that females' lower rates of blue-collar employment are largely a function of gender differences in rates of blue-collar high school course-taking. But even among students who take blue-collar courses, the authors find that the labor market returns to blue-collar course-taking vary by race/ethnicity and gender, with white men receiving the greatest boost in odds of employment from blue-collar course-taking.

Gender, Education, and Labor Force Outcomes

Given previous research on school-to-work links, high school training in blue-collar communities geared more towards blue-collar training and less towards college-preparation may not harm the labor market outcomes of men if they end up in blue-collar jobs. Yet, this coupling may have deleterious consequences for women. First, as discussed earlier, blue-collar jobs are highly sex-segregated and largely blocked to women. Moreover, although blue-collar jobs may offer men good starting wages and opportunities for upward mobility, research indicates that the small numbers of women who obtain employment in blue-collar jobs are typically concentrated in a kind of "female ghetto" (Rosen 1987) within the blue-collar industry, often earning low wages, facing male resistance and sexual harassment, and encountering limited access to critical informal networks (Tomaskovic-Devey and Skaggs 2002) in this highly gendered space (O'Farrell 1999; Rosen 1987). Indeed, Gauchat, Kelly, and Wallace (2012) find that only men experience wage benefits in areas with higher concentrations of manufacturing jobs. Moreover, McCall (2001) finds that cities with a heavier manufacturing base have the greatest gender inequalities in work outcomes.

Current discourse encouraging training for blue-collar jobs has ignored the sex-segregated nature of these occupations and has implicitly assumed that blue-collar occupations are good employment options for both men and the small numbers of women who enter them. To obtain a first-look at this proposition for a Millennial cohort, I use the Current Population Survey (CPS) to calculate the gender gap in 2011 wages across major occupation groups among high school graduates ages 25 and 28. For individuals not paid hourly in 2011, hourly wage is constructed using 2011 salary, weeks and hours worked. Following convention for CPS data, respondents with unreasonable wages (less than $3.16 or more than $316.26 in 2011 dollars) are excluded (see Cha and Weeden 2014). Figure 6.1 shows the average hourly wages of men and women across white-collar, blue-collar, service, and other non-professional occupations. The percentage difference in hourly wages for men and women across these occupations is noted.

Figure 6.1 2011 Average Hourly Wages by Occupation for Men and Women, Ages 25-28 (Wage gap shown above bars)



	White-Collar	Blue-Collar	Service	Non-Prof
Male	$24.68	$17.20	$13.78	$17.39
Female	$21.26	$13.40	$13.54	$15.24

Note: 8,782. Author's calculations from the March 2012 Current Population Survey

We observe the highest average hourly wages for both young men and women in white-collar professions and the lowest average hourly wages for men and women in service jobs. Figure 6.1 also shows that, aside from service jobs, young women earn substantially lower hourly wages than men in all occupation groups, with the largest gender pay gap occurring within blue-collar occupations. Specifically, women working in blue-collar jobs earn only 78% of the wages of their male peers compared to 86% in white-collar jobs. In sum, these data indicate that sub-baccalaureate occupations are generally worse options for women than men with respect to absolute earnings and that gender inequality in wages is greatest among blue-collar workers. These data on current wages for young men and women combined with previous research suggest that the economic stakes of earning a college-degree are high for everyone, but especially for women (DiPrete and Buchmann 2006; Jacob 2002). Thus, while blue-collar training for blue-collar jobs may lead to relatively good wages for men, women in blue-collar communities may suffer labor market penalties if their schools do not offer an academically rigorous curriculum that promotes and prepares them for a four-year college degree.

Research Objective

The overarching objective of this chapter is to investigate whether high school training in blue-collar communities benefits both men and women in the labor market. To do so, I first compare the postsecondary and early employment outcomes of men and women who attended high school in communities with higher and lower concentrations of blue-collar workers. Second, I examine the employment status, occupation, and wages of men and women from blue-collar and non-blue-collar communities eight years after high school graduation, when they are about 26 years old. I pay attention to within-gender differences across communities that vary in their shares of blue-collar workers and compare gender disparities in these outcomes within blue-collar and non-blue-collar communities.

Methods

Dependent Variables

Post-High School Destinations

I first predict students' post-high school destinations two years after the cohort's expected high school graduation year. To do so, I constructed a categorical measure indicating highest level of education attempted for respondents who had enrolled in a postsecondary institution and employment outcomes for those who had not enrolled in a postsecondary institution as of 2006 (the reference category is enrolled in four-year institution; other categories are: not working, employed in a job other than blue-collar, employed in a blue-collar job, and enrolled in two-year institution). NCES coded respondents' occupations using O*NET 2- and 6- digit codes. These codes align with SOC codes, which were used by the Census 2000 to define occupations (see Bureau of Labor Statistics for more information). Thus, the codes used to categorize respondents in blue-collar occupations are the same as those used to define the labor market measure of blue-collar communities described earlier. Following other work examining the relationship between occupational-specific vocational course-taking and type of occupation (Ainsworth and Roscigno 2005), I classify respondents' type of occupation by using the distinction between employment in a blue-collar or non-blue-collar occupation. Due to small cell sizes, I collapse individuals who are out of the labor force or unemployed for the 2006 and 2012 employment outcome measures and refer to this population as “not working.”

<u>Employment Outcomes and Wages in Early Adulthood</u>

The final analyses use the recently released third follow-up of the ELS:2002 sophomore cohort to predict young men’s and women’s labor force outcomes in early adulthood, eight years following respondents’ expected high school graduation (about 26 years old). I first predict respondents’ employment outcomes with a categorical measure indicating whether the respondent is currently not working and respondent’s occupation if employed (the reference category is white-collar and includes respondents in professional, managerial, and finance occupations; other categories are: low-wage service, blue-collar, other non-professional, and not working). As with the previous measure, I used the O*NET codes to create these occupational categories. In the final analyses, I estimate the hourly wages of men and women who attended high schools in counties with smaller and larger shares of blue-collar workers. Hourly wages were constructed by NCES using respondents’ 2011 reported earnings and employment information. I follow convention and log this dependent variable.

Controls

In addition to the control measures used in the previous chapter, these analyses include a measure indicating whether a student obtained a GED or a regular high school diploma. In addition, a minority of respondents reported taking one or more courses at a technical, two-year, or four-year postsecondary institution in 2012. I include this population and control for current enrollment status, but estimates excluding this group from the analyses yield nearly identical results to those reported.

Analytic Plan

I examine whether the tight linkage between high school training and local blue-collar jobs in blue-collar communities benefits men *and* women by first examining respondents' labor market and postsecondary outcomes two years after expected high school graduation. Multinomial logistic regressions are used to predict respondents' post-high school destinations. Models are nested to assess whether school course offerings and student course-taking mediate the relationship between the local labor market and respondents' outcomes. The models predicting post-high school destination are restricted to high school graduates who were attending public schools when they were sophomores in high school and who participated in the 2006 follow-up and the 2002 base year survey (n=10,080). I estimate models separately by gender, and Chow tests support this analytic decision.

The final analyses examine whether high school training in blue-collar communities shapes disparities in males' and females' employment status, occupations, and hourly wages in young adulthood. Multinomial logistic regressions are used to predict respondents' occupations eight years after expected high school graduation, after sample members have had the opportunity to complete postsecondary education. The models predicting labor force outcomes are restricted to public high school sophomore students who graduated from high school and participated in the 2002 base-year and 2012 follow-up surveys (n=9,190). I use Ordinary Least Squares (OLS) regression to predict hourly logged wages in 2011 among high school graduates who reported non-zero wages (n=8,510). These models are nested in order to assess whether differences in high school training, post-high school destinations, and occupation in early adulthood mediate any observed differences in hourly wages among males and females who attended high school in communities with higher and lower concentrations of blue-collar workers. Ancillary analyses indicated that the relationship between high school course-taking and students' college and labor market outcomes does not statistically significantly differ for students attending schools in blue-collar and non-blue-collar communities. Full models are shown in Appendix D.

Because the sample selection filters used in these analyses may bias the estimates, I employ a strategy rooted in the Heckman two-step selection correction logic in an attempt to address this problem. I first used probit models to estimate males' and females' likelihood of being a high school graduate and the likelihood of having non-zero wages with a host of covariates listed in the descriptive statistics table. For the probit model predicting the likelihood of having non-zero wages, I also include indicators of marital status and having children. From these models, I computed inverse Mills ratios (IMR), or the hazard rate of not being included in the sample. Analyses for respondents' post-high school destinations, occupation, and wages eight years following expected high school graduation include the IMR as a regressor, but results are consistent without this adjustment.

Results

Descriptive Statistics

Weighted descriptive statistics for dependent variables and parents' level of education by labor market quartile and gender are shown in Table 6.1. Looking first at post-high school destinations, males and females who attended high school in blue-collar communities are less likely to go to a four-year college than their peers. Notably, the female advantage over males in four-year enrollment is smallest in blue-collar communities (37% vs. 33%; 4% gap), and it is about one-third the size of females' four-year-college enrollment advantage in the first quartile (57% vs. 44%; 13% gap). We also observe that males are more likely to have a blue-collar job than their peers in communities with smaller shares of blue-collar workers, whereas females in general are not likely to be employed in a blue-collar job. Females in blue-collar communities are also more likely to have a non-blue-collar job, be attending a two-year college, and to not be working than females in non-blue-collar communities. Eight years after expected high school graduation, males and females who attended high school in blue-collar communities are less likely to be employed in a white-collar job and more likely to be in a blue-collar job than their peers in non-blue collar communities. Females in blue-collar communities are also more likely to not be working or be in low-wage service jobs than females from non-blue-collar communities. Both males and females from blue-collar communities earn lower average hourly wages than their peers from other communities.

We observe striking social class differences between males and females from blue-collar communities and their counterparts in communities with smaller shares of blue-collar workers. Only about 25 percent of students who attended high school in blue-collar communities have a parent with a four-year degree compared to about 45 percent of students who attended high school in non-blue-collar communities. Already coming from more socioeconomically disadvantaged backgrounds than their peers, to what extent does high school training in blue-collar communities benefit both young men and women in the labor market? The following analyses will investigate this question through predicting students' postsecondary enrollment and labor market outcomes following high school.

Table 6.1. Weighted Means and Proportions for Dependent Variables, By Sex and Blue-Collar Quartile

	Males				Females			
Post-High School Destination (N=10,080)								
Attending 4-year college (ref)	0.44	0.38	0.38	0.33	0.57	0.44	0.45	0.37
Not working	0.04	0.05	0.04	0.04	0.04	0.05	0.05	0.08
Non-Blue-Collar Job	0.23	0.22	0.23	0.19	0.20	0.25	0.27	0.28
Blue-Collar Job	0.10	0.13	0.18	0.27	0.01	0.02	0.01	0.03
Attending 2-year college	0.19	0.21	0.17	0.17	0.18	0.25	0.22	0.24
Occupation 8 Years After Expected HS Graduation (N=9,190)								
White-Collar (ref)	0.32	0.31	0.28	0.27	0.41	0.32	0.34	0.31
Low-wage Service	0.11	0.09	0.08	0.08	0.14	0.17	0.16	0.18
Blue-Collar	0.17	0.22	0.26	0.34	0.03	0.02	0.02	0.06
Not working	0.15	0.11	0.14	0.11	0.16	0.20	0.22	0.24
Other Non-Professional	0.25	0.27	0.24	0.20	0.26	0.29	0.26	0.21
Hourly Wages 8 Years After Expected HS Graduation (N=8,510)								
Wages (SD)	17.62 (11.81)	17.38 (10.20)	17.58 (10.91)	16.51 (10.18)	16.54 (9.12)	15.35 (9.04)	14.29 (8.01)	13.75 (7.95)
Logged (SD)	2.72 (.53)	2.73 (.50)	2.72 (.53)	2.67 (.51)	2.68 (.48)	2.60 (.51)	2.54 (.48)	2.50 (.51)
Parent Education (N=12,770)								
No postsecondary degree (ref)	0.45	0.51	0.54	0.60	0.45	0.53	0.55	0.62
2-year degree	0.11	0.12	0.11	0.15	0.10	0.11	0.11	0.11
4-year degree or above	0.44	0.37	0.35	0.25	0.45	0.36	0.34	0.27

Two Years Out of High School

Both males' and females' course-taking patterns in blue-collar communities suggest that they may be less prepared for college and that males may be more prepared for blue-collar jobs compared with their peers in communities with the smallest share of blue-collar occupations. In Tables 6.2 and 6.3, I use multinomial logistic regressions to investigate males' and females' likelihood of attending a four-year university, being employed in a blue-collar job, being employed in a non-blue-collar job, attending a two-year college, and not working two years after expected high school graduation.

Table 6.2: Average Marginal Effects from Multinomial Logistic Regressions Predicting Males' Post-High School Destinations

	Model 1 - Background					Model 2 - Course Offerings					Model 3 - Course-Taking				
	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col
% County Blue Collar Workers															
(Ref: 1st Quartile)															
2nd Quartile	-0.006	0.017	-0.017	0.013	-0.007	-0.006	0.018	-0.018	0.016	-0.009	-0.002	0.018	-0.020	0.014	-0.010
	(0.024)	(0.010)	(0.019)	(0.018)	(0.020)	(0.022)	(0.010)	(0.019)	(0.019)	(0.020)	(0.022)	(0.010)	(0.019)	(0.019)	(0.020)
3rd Quartile	-0.054 *	0.013	-0.006	0.067 **	-0.019	-0.042	0.012	-0.008	0.060 **	-0.022	-0.027	0.013	-0.014	0.056 **	-0.027
	(0.024)	(0.011)	(0.022)	(0.021)	(0.021)	(0.025)	(0.011)	(0.023)	(0.021)	(0.021)	(0.024)	(0.010)	(0.023)	(0.021)	(0.022)
4th Quartile	-0.072 **	0.016	-0.026	0.089 ***	-0.006	-0.044	0.019	-0.029	0.064 **	-0.010	-0.017	0.019	-0.036	0.050 *	-0.016
	(0.028)	(0.012)	(0.023)	(0.022)	(0.024)	(0.029)	(0.013)	(0.025)	(0.021)	(0.025)	(0.029)	(0.013)	(0.025)	(0.021)	(0.025)
Course-Taking															
# BC courses taken (logged)											-0.065 ***	-0.008	0.018	0.057 ***	-0.001
											(0.011)	(0.006)	(0.010)	(0.009)	(0.010)
Took advanced math course											0.132 ***	0.001	-0.043 *	-0.051 ***	-0.038 *
											(0.017)	(0.010)	(0.018)	(0.015)	(0.016)
Course Offerings															
# BC courses offered (logged)						-0.018	0.001	0.001	0.007	0.009	-0.009	0.002	-0.001	-0.002	0.011
						(0.010)	(0.005)	(0.009)	(0.008)	(0.008)	(0.010)	(0.005)	(0.009)	(0.008)	(0.008)
# AP/IB offered (logged)						0.026 *	0.002	-0.006	-0.021 **	-0.001	0.015	0.002	-0.001	-0.017 *	0.002
						(0.011)	(0.004)	(0.010)	(0.008)	(0.009)	(0.010)	(0.004)	(0.010)	(0.008)	(0.009)
# Advanced math offered						0.009 *	-0.004	-0.004	-0.003	0.001	0.005	-0.004	-0.002	-0.001	0.003
						(0.004)	(0.002)	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)	(0.004)
9th grade math level	0.034 ***	-0.008 **	-0.009	-0.008	-0.009	0.034 ***	-0.008 **	-0.008	-0.008	-0.009	0.026 ***	-0.008 **	-0.006	-0.004	-0.008
	(0.006)	(0.003)	(0.006)	(0.005)	(0.005)	(0.006)	(0.003)	(0.006)	(0.005)	(0.005)	(0.005)	(0.003)	(0.006)	(0.005)	(0.005)
Observations = 4,660															

*** p<0.001, ** p<0.01, * p<0.05; standard errors in parentheses

All models control for: total # courses offered by the school, inverse Mills ratio for selection into sample, GED status, % low-wage service jobs in county, county unemployment rate, race/ethnicity, student transfer status, parent education, family structure, family income, 9th grade GPA, math test score, school % free lunch, school % minority, magnet school status, vocational school status, urbanicity, district per pupil expenditures, state fixed-effects, and whether the school provided a course catalog.

Table 6.3. Average Marginal Effects from Multinomial Logistic Regressions Predicting Females' Post-High School Destinations

	Model 1 - Background					Model 2 - Course Offerings					Model 3 - Course-Taking				
	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col
% County Blue Collar Workers															
(Ref: 1st Quartile)															
2nd Quartile	-0.060 **	0.004	0.019	0.005	0.032	-0.061 **	0.005	0.017	0.006	0.032	-0.049 *	0.003	0.012	0.006	0.028
	(0.021)	(0.011)	(0.022)	(0.006)	(0.019)	(0.021)	(0.012)	(0.022)	(0.007)	(0.019)	(0.020)	(0.012)	(0.021)	(0.007)	(0.019)
3rd Quartile	-0.050 *	-0.001	0.038	-0.000	0.013	-0.041	-0.002	0.034	-0.001	0.010	-0.031	-0.003	0.029	-0.001	0.006
	(0.024)	(0.011)	(0.024)	(0.006)	(0.020)	(0.024)	(0.012)	(0.024)	(0.006)	(0.020)	(0.024)	(0.012)	(0.025)	(0.006)	(0.020)
4th Quartile	-0.107 ***	0.018	0.031	0.012	0.045	-0.073 **	0.007	0.027	0.005	0.034	-0.055 *	0.006	0.019	0.004	0.026
	(0.027)	(0.015)	(0.027)	(0.009)	(0.024)	(0.027)	(0.014)	(0.028)	(0.008)	(0.024)	(0.026)	(0.015)	(0.028)	(0.008)	(0.023)
Course-Taking															
# BC courses taken (logged)											-0.059 **	0.014	0.019	0.009	0.018
											(0.020)	(0.009)	(0.021)	(0.005)	(0.017)
Took advanced math course											0.150 ***	-0.013	-0.076 ***	-0.001	-0.061 ***
											(0.014)	(0.009)	(0.017)	(0.005)	(0.015)
Course Offerings															
# BC courses offered (logged)						-0.016	0.001	0.012	0.004	-0.002	-0.015	0.001	0.012	0.004	-0.002
						(0.009)	(0.004)	(0.009)	(0.002)	(0.008)	(0.009)	(0.004)	(0.009)	(0.002)	(0.008)
# AP/IB offered (logged)						0.043 ***	-0.013 **	-0.013	-0.004	-0.014	0.031 **	-0.011 *	-0.007	-0.003	-0.009
						(0.010)	(0.005)	(0.011)	(0.003)	(0.010)	(0.010)	(0.005)	(0.011)	(0.003)	(0.010)
# Advanced math offered						0.002	0.001	0.003	0.001	-0.006	-0.001	0.001	0.004	0.001	-0.005
						(0.004)	(0.002)	(0.004)	(0.001)	(0.004)	(0.004)	(0.002)	(0.004)	(0.001)	(0.004)
9th grade math level	0.021 ***	-0.007 **	-0.012 *	-0.002	0.001	0.022 ***	-0.008 **	-0.010	-0.002	-0.001	0.015 **	-0.008 **	-0.007	-0.002	0.002
	(0.006)	(0.003)	(0.006)	(0.002)	(0.006)	(0.006)	(0.003)	(0.006)	(0.002)	(0.006)	(0.005)	(0.003)	(0.006)	(0.002)	(0.006)
Observations = 5,190															

*** p<0.001, ** p<0.01, * p<0.05; standard errors in parentheses

All models control for: total # courses offered by the school, inverse Mills ratio for selection into sample, GED status, % low-wage service jobs in county, county unemployment rate, race/ethnicity, student transfer status, parent education, family structure, family income, 9th grade GPA, math test score, school % free lunch, school % minority, magnet school status, vocational school status, urbanicity, district per pupil expenditures, state fixed-effects, and whether the school provided a course catalog.

In Model 1 of Table 6.2, we observe that males who attended high school in blue-collar communities have about a 9 percentage point higher probability of being employed in a blue-collar job ($p<.001$) and 7 percentage point lower probability of attending a four-year college ($p<.01$) relative to males from non-blue-collar communities. These differences are net of base-year sociodemographic, academic background, and other factors. Model 2 introduces high school course offerings, and we observe that the numbers of AP/IB and advanced math courses offered are positively and statistically significantly associated with four-year college attendance, and that the number of AP/IB courses is negatively associated with blue-collar employment. Adjusting for differences in course offerings reduces the gap in blue-collar employment from about 9 percentage points to 6.4 percentage points, but a statistically significant difference persists. Adjusting for differences in high school course offerings reduces the gap in four-year college attendance between males from blue-collar and non-blue-collar communities by nearly 40% and renders the association non-significant. In Model 3, even after controlling for both course offerings and course-taking, males who attended high school in blue-collar communities remain more likely to be employed in blue-collar jobs relative to males from non-blue-collar communities.

Table 6.3 presents these models for females. Model 1 shows that, relative to females who attended high school in non-blue-collar communities, those from blue-collar communities are about 11 percentage points less likely to attend a four-year college ($p<.001$). Accounting for differences in high school course offerings in Model 2 reduces the gap in four-year college enrollment to about 7 percentage points, or by about 35%.

The share of AP/IB course offerings appears to be the driving force behind the attenuation of the relationship. Model 3 introduces course-taking controls, and we see that females who took an advanced math course by the end of high school have a 15 percentage point higher probability of attending a four-year college. Unsurprisingly, the fact that female students in blue-collar communities are less likely to take advanced math seems to be a particular hindrance to their college attendance, and conditioning on course-taking further reduces their disadvantage from a 7.3 to 5.5 percentage point difference. The reduction in the AP/IB course offering coefficient suggests that some, but not all of the association between AP/IB course offerings and four-year college-going operates through its relationship with women's advanced math course-taking. Course-offerings and course-taking combine to reduce the gap observed in attending a four-year college in Model 1 by about 50%. Interestingly, the negative coefficient for females who attended high school in the 2nd quartile for the percentage of blue-collar workers in the county changes little after accounting for these factors, suggesting that different mechanisms may be operating outside of blue-collar communities.

Ancillary analyses not shown here indicated that the gender gaps in blue-collar communities for not working and being employed in a non-blue-collar job are greater than they are in non-blue-collar communities. As suggested by the descriptive statistics discussed earlier, the female advantage in four-year college-going in blue-collar communities was substantially and statistically significantly smaller than it was in other communities. Additionally, controlling for high school course offerings increased the college-going advantage of females from blue-collar communities over their male peers.

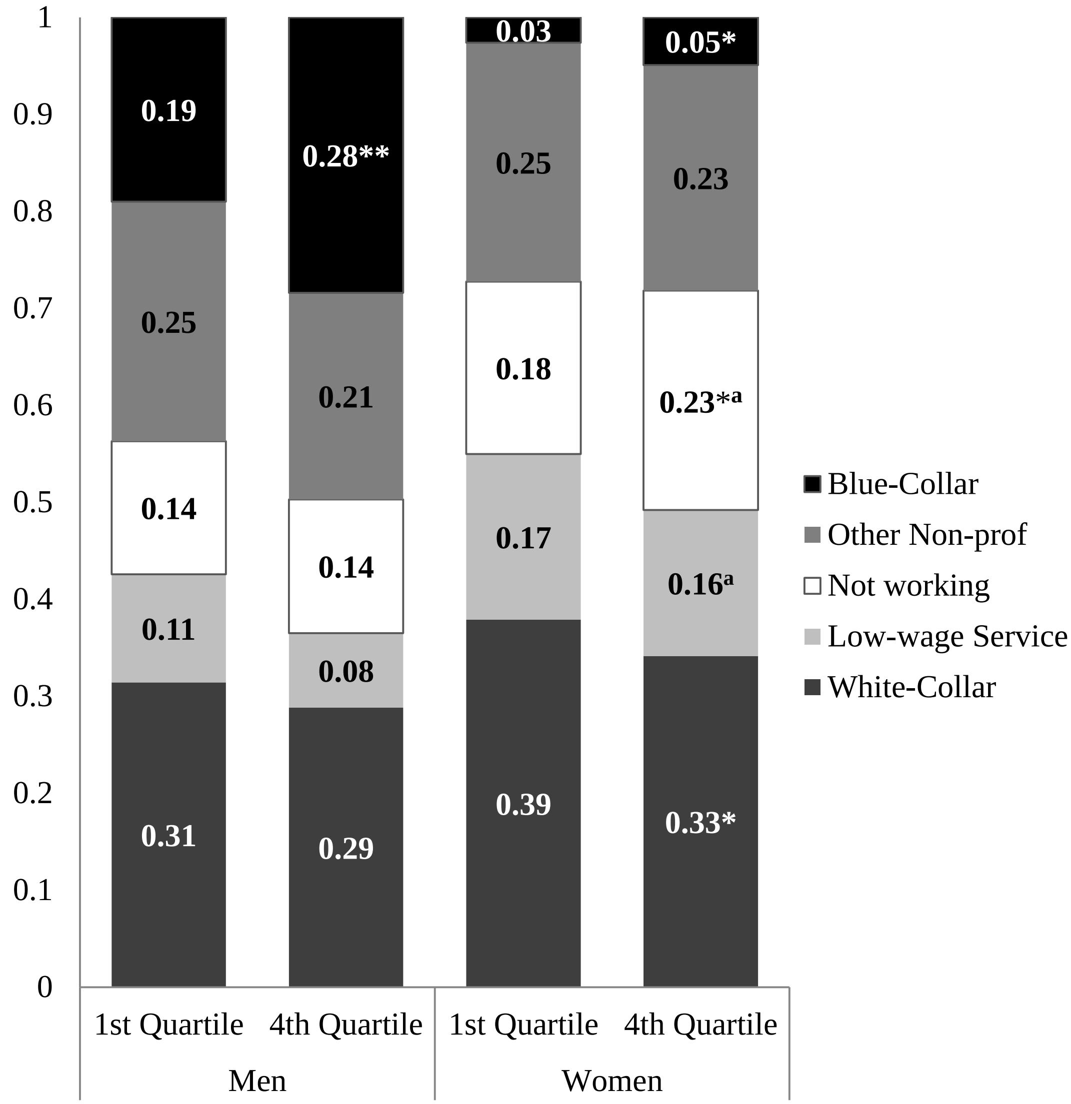
In sum, the findings indicate that high school course offerings and course-taking played a major role in both males' and females' lower probabilities of attending a four-year college relative to their peers in non-blue-collar communities. While course offerings and course-taking partially account for males' higher likelihood of having a blue-collar job and lower likelihood of attending a four-year college in blue-collar communities, we find that males in blue-collar communities are more likely to have blue-collar jobs even independent of these factors. As with course-taking, this suggests a tight connection to the local labor market for males' blue-collar labor force participation; males with local opportunities in blue-collar occupations appear to go into blue-collar jobs even after adjusting for differences in high school training.

Eight Years Out of High School

The previous analyses demonstrated that students in blue-collar communities pursue different post-high school avenues than their peers in non-blue-collar communities and provided insight into where students end up soon after high school. I now turn to investigating students' labor force outcomes eight years out of high school, after students have had the opportunity to complete postsecondary education, in order to shed light on the types of jobs in which students from these different types of communities end up in early adulthood.

Figure 6.2 presents predicted probabilities for males' and females' occupations in 2012 for those attending high school in blue-collar and non-blue-collar communities. These probabilities were estimated from multinomial logistic regressions (shown in Appendix D) controlling for base-year sociodemographic, academic, school, and other local labor market measures. We observe that the predicted probability of being employed in a blue-collar occupation is .28 for males from blue-collar communities compared to .19 for their male peers in non-blue-collar communities. This disparity in blue-collar employment is the only significant difference in occupational outcome among males. In contrast, females in blue-collar communities who are otherwise average on base-year controls are statistically significantly more likely to not be working (.23 vs. 18), less likely to be employed in white-collar jobs (.33 vs. 39), and slightly more likely to be employed in blue-collar jobs (.05 vs.03) relative to females in non-blue-collar communities. Analyses not reported here showed that these differences in adult occupational outcomes for females become non-significant after accounting for differences in course offerings and course-taking in high school, indicating a relationship between high school training and the labor force that persists into women's mid-20s. Ancillary analyses also indicate that the gender gaps in the likelihood of being employed in a service occupation or not working are larger in blue-collar communities than in non-blue-collar communities. The occupational outcomes of men and women from blue-collar communities eight years after high school are consistent with what one would expect given the four-year college enrollment and early employment differences observed in Tables 6.2 and 6.3.

Figure 6.2: Predicted Probabilities for Occupation Eight Years Following Expected High School Graduation



Notes:
* statistically significant within-gender difference (*** p<0.001, ** p<0.01, * p<0.05);
[a] indicates gender gap in 4th quartile is statistically significantly different than gender gap in 1st quartile (p<.01)
All models include: inverse Mills ratio for selection into sample, postsecondary enrollment status, GED status, % low-wage service jobs in county, county unemployment rate, race/ethnicity, student transfer status, parent education, family structure, family income, 9th grade GPA, 9th grade math level, math test score, school % free lunch, school % minority, magnet school status, vocational school status, urbanicity, district per pupil expenditures, and state fixed-effects.

Results indicate that women who attended high school in blue-collar communities were less likely to be working than their male peers and female counterparts in non-blue-collar communities. However, given differences in the postsecondary and occupational outcomes of men and women across these communities, we might also expect to see gender disparities in wages among those who are working. Table 6.5 shows selected coefficients from gender-stratified OLS regressions predicting logged hourly wages for each labor market quartile and controlling for base-year sociodemographic, academic (e.g., 9th grade GPA, 9th grade math course level, 10th grade math test score), and school controls (full model shown in Appendix D). For ease of interpretation, I predict the expected 2011 logged hourly wages for men and women who attended high school in blue-collar (4th quartile) and non-blue-collar (1st quartile) communities who are otherwise average on controls. The antilogs of these predicted values, or the predicted hourly wages in dollars, are presented in Table 6.4. For presentation purposes, I show the predicted wages for males and females within the 1st and 4th quartiles only.

Table 6.4: Estimated Hourly Wages in 2011 and Gender Wage Gap from OLS Regressions Predicting Logged Wages by Gender

	Men	Women	Gender Wage Gap
% County Blue-Collar Workers			
1st Quartile	14.81	13.85	94%
4th Quartile	15.03	12.96*[a]	86%
Observations	3,900	4,620	

Notes:
* statistically significant within-gender difference (*** p<0.001, ** p<0.01, * p<0.05);
[a] indicates gender gap in 4th quartile is statistically significantly different than gender gap in 1st quartile (p<.01)
All models include: inverse Mills ratio for selection into sample, postsecondary enrollment status, GED status, % low-wage service jobs in county, county unemployment rate, race/ethnicity, student transfer status, parent education, family structure, family income, 9th grade GPA, 9th grade math level, math test score, school % free lunch, school % minority, magnet school status, vocational school status, urbanicity, district per pupil expenditures, and state fixed-effects.

Table 6.5: Coefficients from OLS Regressions Predicting Logged Wages in 2011

	Model 1-Background		Model 2-Course Offerings		Model 3-Course-Taking		Model 4-Post-High School	
	Males	Females	Males	Females	Males	Females	Males	Females
% County Blue Collar Workers								
(ref: 1st Quartile)								
2nd Quartile	0.034	-0.060*	0.033	-0.062*	0.03	-0.061*	0.001	-0.027
	(0.030)	(0.027)	(0.029)	(0.026)	(0.03)	(0.03)	(0.028)	(0.024)
3rd Quartile	0.002	-0.061*	0.004	-0.050	-0.001	-0.048	-0.019	-0.041
	(0.031)	(0.026)	(0.031)	(0.026)	(0.03)	(0.03)	(0.029)	(0.024)
4th Quartile	0.017	-0.066*	0.028	-0.032	0.022	-0.027	-0.006	-0.014
	(0.035)	(0.030)	(0.035)	(0.030)	(0.04)	(0.03)	(0.032)	(0.028)
Course Offerings								
# BC courses offered (logged)			0.003	-0.006	-0.004	-0.005	-0.002	-0.006
			(0.011)	(0.011)	(0.01)	(0.01)	(0.011)	(0.010)
# Advanced math offered			0.019	0.007	0.002	0.005	0.002	0.006
			(0.012)	(0.005)	(0.01)	(0.01)	(0.005)	(0.004)
# AP/IB offered (logged)			0.004	0.042***	0.02	0.039***	0.012	0.026*
			(0.005)	(0.011)	(0.01)	(0.01)	(0.012)	(0.010)
Course-taking								
# BC courses (logged)					0.055***	0.004	0.045***	0.023
					(0.01)	(0.02)	(0.013)	(0.021)
Advanced math by end of high school					0.033	0.111***	0.023	0.063**
					(0.02)	(0.02)	(0.023)	(0.019)
Highest Education Attempted by 2006 (ref: no college attendance)								
Two-year college							0.023	0.049*
							(0.028)	(0.021)
Four-year college							0.059*	0.098***
							(0.026)	(0.020)
Employment and Occupation in 2012 (ref: white-collar)								
Low-wage service							-0.500***	-0.436***
							(0.035)	(0.027)
Blue-collar							-0.047	-0.209***
							(0.025)	(0.041)
Not working							-0.402***	-0.436***
							(0.031)	(0.019)
Other non-professional							-0.184***	-0.246***
							(0.024)	(0.017)
Academic Background								
9th grade GPA	-0.022	0.120***	-0.022	0.120***	-0.02	0.101***	-0.009	0.064***
	(0.019)	(0.014)	(0.018)	(0.014)	(0.02)	(0.01)	(0.018)	(0.013)
9th grade math level	-0.008	0.023***	-0.008	0.024***	-0.01	0.017**	-0.003	0.014*
	(0.008)	(0.006)	(0.008)	(0.006)	(0.01)	(0.01)	(0.008)	(0.006)
10th grade math achievement	-0.009***	0.006***	-0.009***	0.006***	-0.008***	0.004**	-0.007***	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.00)	(0.00)	(0.002)	(0.002)
Constant	3.872***	1.828***	3.772***	1.702***	3.731***	1.770***	3.551***	2.152***
	(0.244)	(0.156)	(0.247)	(0.160)	(0.25)	(0.16)	(0.234)	(0.158)
Males=3,900; Females=4120								

*** p<0.001, ** p<0.01, * p<0.05. S tandard errors in parent

All models include: inverse Mills ratio for selection into sample, postsecondary enrollment status, GED status, % low-wage service jobs in county, county unemployment rate, race/ethnicity, student transfer status, parent education, family structure, family income, 9th grade GPA, 9th grade math level, math test score, % free lunch, school % minority, magnet school status, vocational school status, school % minority, magnet school status, vocational school status, urbanicity, district per pupil expenditures, and state fixed-effects.

Model 1 of Table 6.5 shows that females, but not males, in blue-collar communities earn statistically significantly lower wages than their counterparts in blue-collar communities, on average and net of base-year controls. Specifically, women who attended high school in blue-collar communities earn hourly wages that are 6.6% lower, on average, than their female peers in non-blue-collar communities. Turning now to the predicted hourly wages in Table 6.4, we first note within-gender differences across these local labor markets and observe that otherwise average males who attended high schools in non-blue-collar and blue-collar communities make about $15 per hour. In contrast, otherwise average women from blue-collar communities earn almost one dollar lower per hour than their female peers in non-blue-collar communities ($12.96 compared to $13.85).

Most striking is that the gender gap in wages between men and women who attended high school in blue-collar communities is over two dollars ($15.03 compared to $12.96) compared to about a one-dollar difference ($14.81 compared to $13.85) between men and women who attended high school in non-blue-collar communities. Ancillary analyses of a fully-interacted pooled model indicated that the gender gap in wages within blue-collar communities is statistically significantly larger than it is in non-blue-collar communities, and that this gap is reduced by about one-third after controlling for the differences in early adulthood occupation observed in Figure 6.2. These results suggest that gender inequality in early adult labor force outcomes is heightened among young men and women who received high school training in blue-collar communities.

Turning back to the regression coefficients in Table 6.5, I now examine whether differences in high school training help explain the wage differentials observed among females. Given that males from blue-collar communities do not appear to earn lower wages than their male counterparts from non-blue-collar communities, attention is also paid to potential gender differences in the relationship between high school training and wages. In Model 2, high school course offerings are introduced. The number of AP/IB courses offered are positively and statistically significantly associated with women's wages in early adulthood. Specifically, a one percent increase in the number of AP/IB courses offerings is associated with a 4.2 percent increase in wages, on average. Adjusting for differences in course offerings reduces the wage penalty of females from blue-collar communities by one-half and renders the association non-significant. Interestingly, high school course offerings do not appear to matter for males' wages, and results from ancillary analyses indicate that the relationship between AP/IB course offerings and wages for males is statistically significantly weaker than it is for females.

After controlling for high school course-taking in Model 3, the coefficient for females in blue-collar communities is further reduced in magnitude, and we observe a positive and statistically significant relationship between advanced math course-taking and females' wages. Interestingly, adjusting for high school course offerings and course-taking appears to only slightly attenuate the coefficients for females in the 2nd and 3rd quartiles, suggesting that the wage penalty for women in these communities compared to their peers in the 1st quartile has less to do with differences in high school training than it does for women in blue-collar communities. Turning to males now, taking advanced math by the end of high school does not appear to statistically significantly influence their wages, but the number of blue-collar courses taken by the end of high school is positively associated with males' wages. Results from ancillary analyses indicated that the differences in blue-collar course-taking coefficients for males and females are statistically significant, suggesting gender differences in the returns to blue-collar course-taking.

Model 4 introduces students' highest level of education attempted in 2006 and occupation in 2012. Having attended a four-year college by 2006 is positively and statistically significantly associated with wages in 2011 for both males and females. We also observe that all occupations relative to white-collar are linked to lower wages, on average, for both males and females with one exception—males in blue-collar jobs do not earn wages that are statistically significantly lower than those earned by males in white-collar jobs. Surprisingly, statistically significant associations between blue-collar course-taking and males' wages persist. AP/IB course offerings and advanced math course-taking also remain predictive of females' wages, but the reduction in the size of the coefficients suggests that its relationship with females' wages was partially operating through their associations with postsecondary enrollment and current occupation. In ancillary analyses, I found that AP/IB course offerings remained statistically significantly associated with women's wages even after controlling for AP/IB course-taking.

It is important to interpret these results with caution given that respondents are only about 26 years old. However, at least in the short-term, the results suggest that males from blue-collar communities earn comparable wages to their male counterparts who attended high school in communities with smaller shares of blue-collar workers. In contrast, women who attended high school in blue-collar communities earn lower wages than their male peers and their female counterparts in non-blue-collar communities. Results suggest that these young women experienced a relative wage disadvantage partially because their schools did not offer the advanced academic course offerings that lead to the most advantageous pathways to the labor market for women.

Discussion

The ways our nation's schools adapt to a rapidly changing economy have important implications for our economic health and social stratification. Indeed, the educational gradient in life course outcomes is accelerating at a time that jobs and occupational demands are rapidly changing. Some scholars and policymakers continue to argue that the best path to economic success is for individuals and communities to invest in higher education and develop the cognitive skills required by jobs in the knowledge-based economy. In contrast to this camp and to the wave of reforms aimed at curricular upgrading since *A Nation at Risk* (1983), many states are re-emphasizing career and technical training (CTE). In addition, a cadre of academics argues against the "college-for-all" prescription, pointing to evidence of growing mid-skill, sub-baccalaureate jobs primarily in blue-collar occupations. Against this gender-absent scholarly and policy debate, the current study focused on communities and their schools and uncovered the gendered educational and work consequences of linking high school training to local sub-baccalaureate jobs. I focused on this relationship within today's blue-collar communities—places within the United States where these highly sex-segregated jobs still exist and that inspired a classical, primarily ethnographic, sociological literature on the local dynamics of social stratification.

The results demonstrate divergent labor market outcomes for men and women attending high school in blue-collar communities. Relative to their female peers in communities with the smallest share of blue-collar jobs, women in blue-collar communities were less likely to attend a four-year university. Not surprisingly, disparities in these post-high school destinations foreshadowed these women's lower representation in professional jobs and greater odds of not working or working in blue-collar jobs in their mid-twenties. In addition to within-gender differences across local labor markets, I found that women's over-representation among young adults not working and in low-wage service jobs—a primary source of gender inequality in today's economy—is strongest within blue-collar communities.

This study found that women who attended high school in blue-collar communities faced postsecondary matriculation and labor market penalties—independent of family background, base-year academic measures, and other antecedents—that can be traced back to their schools' weaker academic curriculum and lower odds of taking advanced math by the end of high school. For women attending schools in blue-collar communities, this relationship had postsecondary and labor market penalties that reverberated throughout late adolescence and early adulthood. Yet, the results identify that the greater curricular focus on blue-collar courses and weaker focus on advanced academic courses among schools in blue-collar communities has gender divergent labor market consequences. Two-years out of high school, boys were less likely to be enrolled in a four-year college, but were more likely to be employed in blue-collar jobs than their male peers and their female counterparts within blue-collar communities. Their schools' academically weaker curricula, lower odds of taking advanced math, and greater blue-collar course-taking combine to explain their lower probability of attending a four-year college relative to their male peers in non-blue-collar communities (about a 10 percentage point gap). The weaker academic curricula of their schools, combined with their greater blue-collar course-taking, partially accounted for but did not fully explain their higher probability of being employed in a blue-collar job two years following high school graduation.

Eight years out of high school, boys in blue-collar communities remained more likely to be employed in blue-collar jobs, net of a strong set of baseline sociodemographic, academic (e.g., 10^{th} grade math test score, 9^{th} grade GPA and math course level), and school factors. These differences in blue-collar employment were large, with about a 10 percentage point difference in the probability of blue-collar employment between males attending high school in blue-collar and non-blue-collar communities (see AMEs in Appendix D or Figure 6.2). These relationships were not entirely explained by high school training. The residual relationships may be a function of greater opportunities for blue-collar jobs in these local communities and may also have roots in cultural and socialization processes that shape occupation in early adulthood.

Finally, unlike their female peers, males who attended high school in blue-collar communities did not face wage penalties relative to their male counterparts in non-blue-collar communities. Results suggest that this may be the case partially because academically rigorous course offerings and course-taking only appeared to matter for females' wages, on average. In fact, the only observed statistically significant association between high school training and males' wages was for blue-collar course-taking, which positively predicted males' wages. Thus, it appears that the gendered curriculum in blue-collar communities has gendered pay-offs partly because blue-collar training and academically rigorous coursework have differential returns for young men and women.

The results from the previous chapter indicated that the greater advanced math course-taking disparities between students in blue-collar communities and those in non-blue-collar communities occurred among average-to-high-achievers. Yet ancillary analyses revealed no statistically significant interaction between the labor market and the post-high school outcomes predicted in this chapter for men. The labor market patterns observed for occupation and wages eight-years following high school also did not statistically significantly vary across achievement levels among women. However, these results did suggest that differences in two-year college-going between young women who attended high school in blue-collar communities and their counterparts from non-blue-collar communities were greater among high school higher-achievers. It is perhaps unsurprising that this pattern of stratification found in the previous chapter does not carry through into early adulthood, when students are no longer formally sorted by test scores and many other factors likely come into play.

The findings from this chapter have implications for research examining school-to-work links. The U.S. educational system is distinct from most other countries in that the link between curriculum and the labor market is more weakly coupled and students typically enter vocational or career and technical specialization relatively late in adolescence (high school) (Hannan, Raffe and Smyth 1996; Kerckhoff 1995). Often, CTE course enrollment is as much a choice away from an academic curriculum as it is toward sub-baccalaureate career training among students who are struggling with the academic curriculum. Proponents in the current debate about expanding CTE opportunities point to European education models that foster strong school-to-work links, highlight its potential labor market value as an alternative to college and emphasize that it is an alternative worthy of choice even for students who are not struggling academically.

The case of schools in blue-collar communities is exactly this type of condition, where the school and labor market are more tightly coupled and blue-collar coursework is more prevalent, and perhaps less marginalized than in most U.S. schools. Yet, this local setup appears to help foster a school-to-work link only for boys. Indeed, women in blue-collar communities were no more likely to enter blue-collar jobs relative to females in non-blue-collar communities two years out of high school, and the difference in representation in blue-collar occupations eight years following high school was only two percentage points (5 percent compared to 3 percent). This difference is especially small compared to the 10% expected gap in four-year college-going (Table 6.3), 5% expected gap in not working, and 6% expected gap in professional employment (Figure 6.2) between women in blue-collar and non-blue-collar communities.

These findings provide strong evidence that the coupling between prevalent local jobs and high school training in blue-collar communities does not benefit women. But is this coupling that appears to facilitate a school-to-work link good for boys, whose lower educational achievement and attainment drive current scholarly and policy discourse? Indeed, research finds labor market advantages of high school vocational training when the type of training it is linked to students' post-high school occupation (Grubb 1999)—a match this study's results suggest is strong for young men in blue-collar communities.

Although the CPS estimates of wages across occupations, reported in Figure 6.1, show sizable gaps in young men's earnings between men in professional and blue-collar occupations, these estimates are purely descriptive. The analyses reported in Table 6.5 show that young men in public high schools in the base-year of ELS who were employed blue-collar jobs in 2011 did not earn statistically significantly lower wages than men employed in professional occupations after controlling for sociodemographic and early high school academic factors; however, these early adulthood wage patterns (about age 25) warrant caution.

It is possible that the labor force outcomes of these young men provide support for President Obama's and policymakers' statements touting blue-collar jobs as economically pragmatic alternatives to the kinds of jobs many four-year graduates obtain. Rather than shouldering the substantial cost of higher education, these young men were earning wages in occupations that can rival and surpass many baccalaureate degree-requiring jobs. Thus, this narrowly focused high school training may benefit, or at least not harm, the short-term labor market prospects of young men from blue-collar communities. At the same time, because these young men were less likely to attend a four-year college, they may face limited alternative opportunities to obtain well-paying jobs because blue-collar jobs are among the only remaining higher-paying sub-baccalaureate occupations (Carnevale et al. 2011). Furthermore, research finds that the early adulthood employment advantages of taking more high school vocational courses and fewer general courses are "offset by less adaptability and thus diminished employment later in life" (Hanushek, Woessmann and Zhang 2011). A recent study indicates that blue-collar workers—and the communities that relied most upon them—disproportionately bore the financial burden during the Great Recession (Sum et al. 2010). It is possible that CTE courses that complement and emphasize the cognitive skills typically linked to academically rigorous courses, as discussed by some scholars (Bozick and Dalton 2013; Stone, Alfeld and Pearson 2008), have the potential to cultivate the analytic skills increasingly required in the knowledge-based economy.

Although a topic of great interest to social stratification and inequality scholars as well as for the general public, it is beyond the scope of this study and the data to examine the longer-run consequences of a tighter school-to-blue-collar work transition for young males. What is clear from this study is that the same school curricula that foster—or at least does not inhibit—a school-to-work link for young men in the short-run penalizes women in the labor market. The returns to a four-year degree are larger for women than they are for men (DiPrete and Buchmann 2006) and well-paying sub-baccalaureate jobs are almost entirely concentrated among male-dominated, blue-collar jobs (Carnevale et al. 2011). High school training in blue-collar communities appears to ultimately harm the labor market prospects of young women not because they offer greater numbers of blue-collar courses *ipso facto*, but because they do so at the expense of offering academically rigorous courses that prepare young women for bachelor's degrees and professional work. The flip-side of this pattern is that young women in communities with the lowest concentrations of blue-collar workers, who have served as the referents in this study's analyses, reap educational and labor market advantages that are partially a function of their schools offering advanced academic courses that advantage women after high school. Indeed, the course offerings figure in Chapter 5 showed that schools in the 1st quartile offered twice as many AP/IB courses as blue-collar courses, whereas schools within blue-collar communities offered almost twice as many blue-collar courses as AP/IB courses. Future work should further investigate how the curricular choices of schools shape gender inequality more generally and in the context of different types of local economies.

This study's attempt to examine linkages between local labor markets, school curricula, and gendered education and labor market outcomes has limitations. It is possible, for example, that I did not fully capture the differences between families who select into or choose to stay within blue-collar communities and those who do not; these differences may be related to both the local labor market and their sons' and daughters' education and labor market outcomes. In ancillary analyses, I find that the presented findings are robust after accounting for father's and/or mother's employment in a blue-collar occupation, a potential source of selection into these communities. In addition, the results indicate that school course offerings largely mediate the course-taking differences that foreshadow disparities in post-high school destinations across communities. Identifying this institutional constraint as a mechanism for the relationships found between the local labor market and gender differences in students' outcomes provides greater confidence that the observed relationships between the local labor market and the study's outcomes of interest are not spurious. Moreover, the results suggest that gender differences exist *within* blue-collar communities among otherwise similar families. This provides stronger confidence in these results to the extent that selection into communities is similar among families with sons and daughters. Nonetheless, without examining changes in job opportunities in local labor markets over time due to economic shocks or other sources of exogenous variation, it is not possible to make causal inferences between the local labor market and young adults' labor force outcomes.

Previous research suggests that white males are the greatest beneficiaries of blue-collar jobs, and recent work highlights the importance of examining how local and regional labor markets shape labor market outcomes at the intersection of gender, class, and race/ethnicity (McCall 2001). I found a very similar pattern of findings for lower- and higher- SES males and females from blue-collar communities. Although cell sizes were small, results from ancillary analyses suggest that the disparity in blue-collar employment between black and white males was greatest among young males attending high school in blue-collar communities. Revisiting earlier sociological work that investigated racial inequalities within blue-collar communities should be a priority for future research. Although the patterns of gender disparities among Black men and women in blue-collar communities looked similar to those of white men and women in ancillary analyses, small cell sizes prevented a full analysis of gender gaps in labor force outcomes across racial/ethnic groups within these communities.

Conclusion

Overall, this chapter's results are consistent with research associating local labor markets with lower demands for female labor (Cotter et al. 1998; Hanson and Pratt 1992) and heavier concentrations of manufacturing jobs with greater gender inequality in the New Economy (Gauchat, Kelly and Wallace 2012; McCall 2001). Yet, through conceptualizing schools as connected with and arising out of communities, this study elucidates the role of gendered school curricula within these local labor markets in the production of gender stratification in early adulthood. This pattern was indeed seen in the early 20th century, when women's technical training was limited to often poorly funded home economics training or lower-status textile and factory work while men were trained for blue-collar work in industrial cities (Rury 1991; Werum 2002). Women in blue-collar communities were not provided with the technical training that would benefit them in the labor market a century ago. This chapter reveals a similar story almost a century later; schools in communities with existing blue-collar jobs emphasize blue-collar training for young men but de-emphasize the rigorous academic course offerings that encourage advanced academic course-taking and college-going—the pathway that leads to the greatest labor market opportunities for women.

Chapter 7: Conclusion

Schools in every modern society are charged with the task of equitably preparing future workers for highly differentiated jobs in the labor market. Classic debates about whether high schools should emphasize academic coursework or vocational training have escalated in the midst of economic recovery, an increasingly polarized labor market, and ballooning inequality. This tension arises out of the cognitive skills demanded by the knowledge economy and the technical skills demanded by sub-baccalaureate jobs. Some scholars and policymakers call for increased academic intensification that prepares students to attend and complete a four-year degree. Others advocate a renewed emphasis on CTE curricula that prepare students for sub-baccalaureate jobs. Exponents of each curricular prescription have tended to focus on national labor market demands, and dominant sociological paradigms have emphasized how schools serve broader societal needs or reinforce disparities in the occupational division of labor. Yet the geographic distribution of jobs demanding higher and lower levels of education is highly uneven, and at least historically, high school training has been tailored to local labor market demands. Furthermore, this debate has been gender-neutral even though well-paying sub-baccalaureate work lies primarily in male-dominated, blue-collar occupations that have escaped the "hollowing out" of mid-skills occupations.

This dissertation highlighted these local economic and gendered dimensions that have been neglected in academic research and policy discussions on high school training in the new economy. Specifically, I investigated the potential relationships among local labor markets, the academic and CTE focus of high school course offerings, and males' and females' education and labor market outcomes. Chapter 3 focused on local labor markets with higher and lower shares of sub-baccalaureate workers. I first investigated whether schools in communities with higher concentrations of workers in sub-baccalaureate jobs devote a larger share of their curricula to CTE courses and a smaller share to advanced academic coursework (Research Aim 1). I found evidence for this connection between local labor markets and school course offerings.

Next, I examined whether students in communities with higher concentrations of workers in sub-baccalaureate jobs take greater numbers of CTE courses and have lower odds of taking advanced academic math (Research Aim 2a). I also assessed the role of course offerings in explaining any of these course-taking differences (Research Aim 2b). I found that the course-taking patterns of students across these places paralleled the school course offerings patterns. Specifically, I found that students attending high schools in local labor markets with higher concentrations of sub-baccalaureate workers tend to take greater numbers of CTE courses than their counterparts attending high schools in local labor markets with lower concentrations of sub-baccalaureate workers, and these course-taking differences are partially explained by differences in CTE school course offerings. I also found that students attending high schools in places with higher concentrations of sub-baccalaureate workers—especially those who were higher-achieving—are less likely to take advanced math course by the end of high school relative to their counterparts in areas with lower concentrations of sub-baccalaureate workers. Results indicated that the lower academic rigor of the curriculum of schools plays an important role in explaining these students' lower odds of taking an advanced academic math course.

The third chapter investigated the overall relationship between the character of high school training and the concentrations of local sub-baccalaureate workers. The current backlash against the college-for-all ethos and promotion of CTE training has often cited blue-collar jobs as examples of well-paying, sub-baccalaureate work. This discussion has been gender-neutral, despite the fact that these jobs are male-dominated. For these reasons, the remainder of this dissertation's research aims focused on males' and females' education and labor market outcomes who attended high schools in communities with larger shares of blue-collar workers. In the fifth chapter, I investigated whether males and females in communities with higher concentrations of blue-collar workers take greater numbers of blue-collar courses and whether they are less likely to take advanced academic math relative to their peers in communities with lower concentrations of blue-collar workers (Research Aim 3a). I was also interested in whether differences in blue-collar and advanced academic course offerings across these communities explained any observed differences in course-taking (Research Aim 3b). Results indicated that males, but not females, attending high schools in blue-collar communities take greater numbers of blue-collar courses than their counterparts attending high schools in communities with the lowest shares of blue-collar workers. Both males and females from blue-collar communities were less likely to take an advanced math course by the end of high school, but these math course-taking disparities were found only among students who were average-to-high achieving. Adjusting for differences in course offerings across these communities only partially explained these course-taking patterns.

Finally, I investigated whether high school training in blue-collar communities benefits both men and women by examining gender disparities in males' and females' postsecondary and labor market outcomes (Research Aim 4). In sum, results suggested that high school training in blue-collar communities fostered a strong school-to-blue-collar work link for young men. In sharp contrast, women from blue-collar communities suffered severe labor market penalties relative to their male peers and female counterparts who attended high schools in communities with the lowest concentration of blue-collar workers. Results suggested that their schools' weaker academic curriculum played an important role in the postsecondary and early labor market disadvantages these women faced, operating both through and independent of its relationship to their lower odds of taking advanced math in high school.

Policy Implications

This dissertation raises questions related to enduring debates about what schools should teach the nation's youth. Historically, politicians and business leaders have directed attention and often assigned blame to the school system during economic downturns, asserting that schools have not adequately trained students for the skills required in the labor market (Bartlett et al. 2002). In contrast to the curricular reform efforts since the 1980s, which have aimed to prepare all students for four-year colleges, recent policy discussions have represented European models with tight secondary school-to-work linkages as models of success. Indeed, President Obama's recently touted manufacturing innovation hubs are rooted in this model and aim to secure the talent pipeline for these mid-skills jobs through forging connections between high schools, community colleges, and local blue-collar industries. However, these initiatives are geographically-focused and mainly in the South and Midwest—pockets within the country where some blue-collar jobs persist even after decades of decline, and whose economies stand in sharp relief to those relying on high-tech, innovative job sectors.

The gendered nature of this work has been ignored by these initiatives and similar state legislative efforts to expand blue-collar related CTE coursework, in some cases at the cost of academically rigorous courses. But the results from this dissertation suggest that increased high school training related to local blue-collar jobs absent an academically rigorous curriculum may heighten gender inequality in the labor force and leave young women floundering in the new economy. Indeed, the findings from Chapter 6 suggest that the weaker academic curriculum of schools in blue-collar communities played a role in the lower wages and higher rates of unemployment and low-wage service employment for women. And while blue-collar training may benefit local economies in the short-run, recent work argues that community- and state-level investment in four-year degrees provide the only viable avenue towards economic health and resiliency in places where blue-collar jobs are predicted to continue declining (Moretti 2013). The results from this dissertation cannot speak directly to the larger debate of whether a renewed emphasis on training for local blue-collar jobs will contribute to or detract from the nation's long-run economic health; however, it highlights one important, though neglected, aspect of this debate and issues a call for concern about gender equity and the outcomes of young women.

In addition, the results suggesting gender-divergent labor market outcomes of high school training in blue-collar communities have general implications for research on school-to-work links and labor market stratification. Results predicting young men's and women's wages in early adulthood suggest that academic and CTE coursework may have gendered returns in the labor market. Whereas academically rigorous course offerings and course-taking were positively related to women's wages, they appeared to matter little for the wages of young men. Indeed, the only curricular indicator that did not appear to matter for women's wages—blue-collar course-taking—was the only curricular indicator that appeared to matter for men's. These findings challenge functionalist assumptions that human capital is rewarded equally in the labor market and indicate that the curricular choices of schools may heighten inequality in some contexts. Research that investigates trade-offs between CTE training for existing jobs and social equality—and how these tradeoffs may vary across diverse local economies—will be imperative as the nation strives to fill existing mid-skills jobs with trained workers *and* reduce status-group inequality.

Overall, this dissertation suggests that gender should be featured prominently in both academic and public discussions about whether schools should serve as the training grounds for highly specialized industries or provide students with academic coursework that cultivates broader knowledge and critical thinking skills. Given the backlash against the four-year college-for-all prescription and legislation aimed specifically at increasing blue-collar related training in states with strong blue-collar economic bases, we might expect the relationships observed with the ELS:2002 cohort to be even stronger today and in the near future. Thus, it will be important for academic researchers to provide theoretical and empirical insights on the consequences of a tighter coupling between high school training and local jobs for educational and labor market stratification. In addition, recent state legislation (e.g., Texas, Michigan, Florida) that allows students to take CTE courses as alternatives to academic courses will provide academic researchers with a unique methodological tool. My dissertation research is limited in its ability to draw causal inferences between high school training and students' outcomes, but these state policies can serve as instrumental variables to better capture the effects of different types of high school training on educational attainment, labor force outcomes, and status-group inequalities.

Broader Implications and Directions for Future Research

As discussed in Chapter 1, this dissertation has implications for a set of firmly established sociological subfields, including education, stratification and inequality, gender, and work and occupations. In addition to these established literatures, this dissertation also has implications for a growing body of work on the geographic concentration of disadvantage and increasing educational and economic stratification across place (e.g., Domina 2006; Lichter, Parisi, and Taquino 2012). For example, prior research and theory suggest that vocational course-taking leads to lower cognitive skills and to dispositional traits linked to lower-status jobs. In contrast, advanced academic course-taking fosters cognitive development and cultivates the dispositional traits associated with higher-status jobs (Bowles and Gintis 1976; Gamoran 1987; Oakes 2005). Thus, schools in areas with higher concentrations of sub-baccalaureate jobs may not only graduate more high school students who are not college-ready, they may also graduate more students with lower cognitive skills, a predictor of adult earnings even net of educational attainment (Farkas, England, Vicknair, and Kilbourne 1997).

To the extent that students in these communities stay or move to communities with similar job structures, school curricula related to the educational requirements of local jobs may play a significant role in sustaining the (often gendered) spatial division of labor. Because the advanced academic course-taking of higher-achieving students across local labor markets is most affected, these communities may be able to secure the (predominately male) talent pipeline and possibly reap economic benefits in the short-term. Yet community attempts to revive dying blue-collar industries may be myopic (Moretti 2013). Moreover, results from this dissertation suggest that such attempts may come at the cost of national goals, such as increasing the proportion of women in STEM fields.

Recent research investigating spatial inequalities finds substantial variation in individuals' chances for upward mobility across place within the United States and identifies variation in general measures of school quality as primary correlates of these differences (Chetty et al. 2014). Because academic course offerings and course-taking are powerful predictors of college-going and completion (Adelman 2006), school curricula linked to the educational requirements of local jobs shape individual differences in the chances of upward and downward mobility across these places. This may be especially the case given results indicating that the greatest disparities in advanced math course-taking across local labor market was among higher-achieving students—those who were best positioned as high school sophomores to continue towards a bachelor's degrees.

The patterns of gender inequality between young men and women who attend high schools in blue-collar communities add an interesting gender dynamic to research research on the relationship between where one is raised and intergenerational mobility. The current study's results suggested that the greater blue-collar emphasis and weaker academic focus of high school training in blue-collar communities penalized women in the labor market but resulted in no obvious labor market penalties for men, at least in the short-run. These gender divergent consequences are not surprising given the higher returns to a bachelor's degree for women and the greater opportunities for men to earn decent wages in blue-collar jobs without a four-year degree. Although both males and females from blue-collar communities had parents with lower levels of education than their peers, on average, this study's findings suggest that women who attended high school in blue-collar communities may have fewer opportunities for upward mobility than their male peers, partially because their high schools' weaker academic curricula restricted their access to the education level and type of work that pays off for women. Future work should investigate how local economic characteristics and high school curricula may act independently and jointly to shape gender differences in rates of intergenerational mobility.

This dissertation considered how high school training in areas with high concentrations of blue-collar workers shaped gender stratification in education and the labor force. How might the concentration of female-dominated jobs or male-dominated, professional jobs shape high school training and gender disparities in the labor market? Research by Riegle-Crumb and Moore (2013) found that females are more likely to take physics in communities with greater numbers of female STEM professionals. In addition, Legewie and DiPrete (2014) find that gender gaps in plans to major in STEM are smaller in schools with a heavier curricular emphasis on STEM. Tying together this research, is there a relationship between the concentration of STEM workers, high school STEM course offerings, and gender disparities in STEM? On the opposite end of the spectrum, do schools in communities with high local concentrations of low-wage service workers reinforce women's disproportionate representation in these "bad" jobs by devoting a larger share of their curriculum to low-wage service related coursework? Future research should examine how high school training in communities with different occupational structures may widen or narrow gender inequalities.

Conclusion

Instead of growing more similar, communities' worker profiles and economies have grown increasingly apart in the global economy. Brain hubs that drive the nation's success and lure workers with high levels of human capital are on one end of the spectrum, and places with heavy shares of sub-baccalaureate workers and floundering economies are on the other end. Moretti (2012:248) explains this trend and others as part of a broader paradoxical phenomenon in which "our global economy is becoming increasingly local," and he argues that greater human capital investments provide the only hope for communities relying on low-wage work and declining manufacturing jobs.

Of great concern are this dissertation's findings that schools in similar communities—those with higher concentrations of workers in sub-baccalaureate and blue-collar jobs—actually *restrict* students' opportunities to acquire the levels of human capital demanded by most good jobs in the knowledge economy. In the case of the human capital investments (and lack thererof) of schools in blue-collar communities, the gendered nature of blue-collar works adds a layer of complexity. The high school training in blue-collar communities may not penalize young males in the short-term, of whom a large share obtain employment in well-paying blue-collar jobs. However, this research suggests that high school curricular investments in blue-collar coursework at the expense of an academically rigorous curriculum may leave women behind in the global *and* local economy.

Ultimately, the findings from this dissertation challenge the quintessential American ideal of a meritocratic education system in which equally talented students are provided with equal access to coursework that fosters upward mobility. Scholars for over a century have found that our education system subverts this ideal by systemically stratifying talented students' opportunities along socioeconomic status, racial/ethnic, and gender axes of inequality. The results from this dissertation suggest that schools differentially train students along a spatial axis of inequality. Through linking the educational character of coursework to the education levels typical of local jobs, talented students across local economies are unequally distributed into academically rigorous and CTE coursework. These relationships in the context of prevalent local blue-collar jobs shape patterns of gender inequality that run counter to overall trends that fit the “rise of women” and “female advantage” narrative.

Most contemporary research on high school training has focused on national-level economic demands and emphasized how schools shape aggregate patterns of status-group inequality. This dissertation draws attention to the connection between high school training and diverse local economies, and it suggests that this link shapes spatial disparities in educational opportunities and structures unique patterns of gender inequality in early adulthood. As the polarization between good and bad jobs becomes increasingly spatially expressed in the bifurcation of local economies, it will be important for scholars to further investigate how schools—as embedded within communities and unequal providers of human capital—shape the geographic contours of education and labor market stratification.

Appendices

Appendix A

Table A.1 Weighted Descriptive Statistics for Independent Variables, Base-Year Sample of Sophomores in Public High Schools

	Mean/Proportion	SD
Local Labor Market Measures		
% Workers in Sub-baccalaureate Jobs (CZ)	59.44	5.57
% Blue Collar Workers (County)		
1st Quartile (ref)	0.25	
2nd Quartile	0.26	
3rd Quartile	0.26	
4th Quartile	0.23	
% CZ Unemployed	6.04	1.79
% County Service Workers	13.19	2.46
% County Unemployed	6.10	2.36
Sociodemographic Background		
Race/Ethnicity		
White (ref)	0.59	
Black	0.15	
Asian	0.04	
Hispanic	0.17	
Other	0.05	
Lives with both biological parents	0.56	
Family income	8.85	2.37
Parent Education		
No postsecondary degree (ref)	0.53	
2-year degree	0.12	
4-year degree or above	0.35	
Follow-Up One Enrollment Status		
Enrolled in Base-Year School	77.40	
Transferred to new school	0.10	
Other status	0.12	
Academic Background		
9th grade GPA	2.50	0.92
9th grade math course level	3.88	1.40
10th grade math achievement test score	36.85	11.92
10th grade GPA	2.41	1.60
10th grade math course level	4.72	1.60
Student Educational Expectations		
No College Attendance (ref)	0.10	
Two-year college	0.08	
Four-year college	0.45	
Advanced degree	0.37	

Table A.1 , continued.	Mean	SD
School Measures		
% Math Courses Beyond Alg2	30.35	10.22
% CTE Courses of Total Courses	24.66	11.13
% AP/IB of Total Academic Courses	9.61	5.44
# BC courses offered (logged)	2.14	0.98
# AP/IB offered (logged)	2.21	0.96
# Advanced math offered	3.48	2.14
# Courses offered by the school	195.64	113.37
School provided course catalog	0.94	
School % receiving free/reduced lunch	22.79	18.64
School % minority	35.50	30.88
Magnet school	0.13	
Vocational School	0.09	
Urbanicity		
Urban (ref)	0.38	
Suburban	0.51	
Rural	0.21	
District per-pupil expenditures	8619.17	2377.66
School size (total enrollment)	1468.57	830.54
Student-teacher ratio	17.58	3.99
Top Quartile for Average Parental Education	0.26	
Additional Covariates		
Enrolled in postsecondary courses in 2012	0.25	
GED status	0.04	

N=12,770

Table A2. Weighted Means/Proportions of Independent Variables for Sample of Public High Schools

	Mean/Proportion	SD
Local Labor Market		
% Workers in sub-baccalaureate jobs (CZ)	61.79	5.47
% Unemployed (CZ)	5.86	1.74
% Blue-Collar Workers (County)	27.36	7.91
% Low-wage service (County)	13.48	2.59
Urbanicity		
Urban (ref)	0.13	
Suburban	0.42	
Rural	0.46	
Region		
Northeast	0.14	
West	0.30	
Midwest	0.35	
South	0.21	
School Demographics and Resources		
% Minority students in school	23.86	27.88
Student-Teacher Ratio	15.19	4.19
School size (enrollment)	748.61	673.21
Per-pupil expenditures	8757.61	3102.06
% Free-reduced cost lunch (logged)	2.80	1.09
Top quartile for average parental education	0.17	
Vocational school flag	0.03	
Magnet school flag	10.40	
# School courses	130.00	0.89
# School math courses	13.07	7.45

N=540

*Note: These means and proportions are for schools in the analytic sample for the school-level analyses.

Appendix B

Table B.3.4. Coefficients from OLS Regression Predicting # of CTE Courses Taken (logged)

	Model 1	Model 2
Local Labor Market		
% of workers employed in non-BA jobs	0.028***	0.019***
	(0.007)	(0.003)
Base-Year Controls		
Female	-0.311***	-0.302***
	(0.030)	(0.023)
Race/Ethnicity (ref: white)		
Black	0.000	0.039
	(0.050)	(0.041)
Latino	-0.067	-0.054
	(0.053)	(0.040)
Asian/Pacific Islander	-0.122	-0.077
	(0.077)	(0.043)
Other	0.057	0.037
	(0.063)	(0.051)
Lives with Both Biological Parents	-0.004	0.003
	(0.029)	(0.024)
Annual Family Income	-0.009	-0.005
	(0.007)	(0.006)
Parental Education (ref: no college degree)		
Two-year degree	-0.194***	-0.152***
	(0.031)	(0.027)
Four-year degree or higher	-0.249**	-0.244***
	(0.076)	(0.055)
First Follow-Up Status (ref: enrolled in base-year school)		
Transferred to new school	-0.181***	-0.154***
	(0.047)	(0.039)
Other	-0.256***	-0.228***
	(0.049)	(0.040)
Math achievement test score	-0.013***	-0.011***
	(0.002)	(0.001)
10th grade math course level	-0.029**	-0.035***
	(0.011)	(0.008)
10th grade academic GPA	-0.122***	-0.126***
	(0.021)	(0.016)
# of courses taken	0.028***	0.028***
	(0.002)	(0.001)
Student Educational Expectations (ref: no college)		
Two-year college	0.235***	0.234***
	(0.059)	(0.056)
Four-year college	-0.082	-0.069
	(0.050)	(0.046)
Post-baccalaureate degree	-0.150*	-0.142**
	(0.059)	(0.053)

Table B.3.4, continued.

	Model 1	Model 2
School Measures		
Urbanicity (ref: urban)		
Suburban	0.173*	0.049
	(0.069)	(0.032)
Rural	0.174*	0.109**
	(0.089)	(0.041)
Magnet school flag	-0.171	-0.077*
	(0.095)	(0.038)
Vocational school flag	0.309**	0.177**
	(0.098)	(0.055)
Student-teacher ratio	-0.008	-0.002
	(0.011)	(0.003)
% minority	-0.001	-0.001
	(0.001)	(0.001)
School Resources		
School in 4th quartile for average parental education	-0.142	-0.032
	(0.077)	(0.034)
% Free/reduced-cost lunch	0.086**	0.073***
	(0.033)	(0.013)
Per-pupil total expenditures 2000-01	-0.000**	-0.000***
	(0.000)	(0.000)
School size	-0.000	-0.000
	(0.000)	(0.000)
# of school courses	0.001	-0.000
	(0.000)	(0.000)
School provided course catalog	-0.062	0.042
	(0.102)	(0.055)
School Course Offerings		
School CTE offerings as % of total course offerings		0.028***
		(0.002)
Academic rigor of math curriculum		-0.002
		(0.001)
School AP/IB offerings as % of total academic course offerings		-0.006*
		(0.003)
% unemployed in local labor market	-0.019	-0.027**
	(0.020)	(0.010)
Constant	-0.744	-0.939**
	(0.634)	(0.308)
N=11,610		

Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05
Note: All models include state fixed-effects.

Table B.3.5. AMEs from Logistic Regression Predicting Advanced Academic Math Course-Taking

	Model 1	Model 2	Model 3	Model 4
Local Labor Market				
% of workers employed in sub-baccalaureate jobs	-0.004*	-0.001	0.003	0.006
	(0.002)	(0.002)	(0.004)	(0.004)
Base-Year Controls				
Math achievement test score	0.007***	0.007***	0.017**	0.018***
	(0.001)	(0.000)	(0.005)	(0.005)
Math X % of workers employed in sub-baccalaureate jobs			-.0002*	-.0002*
			(0.000)	(0.000)
Female	-0.017*	-0.018*	-0.017*	-0.018*
	(0.008)	(0.008)	(0.008)	(0.008)
Race/Ethnicity (ref: white)				
Black	0.037*	0.035*	0.036*	0.034*
	(0.016)	(0.016)	(0.016)	(0.016)
Latino	0.016	0.018	0.017	0.019
	(0.014)	(0.014)	(0.014)	(0.014)
Asian/Pacific Islander	0.067***	0.062***	0.066***	0.060***
	(0.016)	(0.016)	(0.017)	(0.017)
Other	0.008	0.011	0.007	0.011
	(0.018)	(0.017)	(0.018)	(0.017)
Lives with Both Biological Parents	0.017	0.016	0.017*	0.016
	(0.009)	(0.008)	(0.009)	(0.008)
Annual Family Income	0.000	0.000	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.002)
Parental Education (ref: no college degree)				
Two-year degree	0.031***	0.028**	0.032***	0.028**
	(0.009)	(0.009)	(0.009)	(0.009)
Four-year degree or higher	0.041	0.038	0.042	0.038
	(0.023)	(0.023)	(0.023)	(0.023)
First Follow-Up Status (ref: enrolled in base-year school)				
Transferred to new school	-0.051**	-0.051**	-0.050**	-0.049**
	(0.016)	(0.016)	(0.016)	(0.016)
Other	-0.104***	-0.104***	-0.104***	-0.103***
	(0.017)	(0.017)	(0.017)	(0.017)
10th grade math course level	0.087***	0.085***	0.088***	0.086***
	(0.006)	(0.006)	(0.006)	(0.006)
10th grade academic GPA	0.122***	0.124***	0.123***	0.125***
	(0.006)	(0.006)	(0.006)	(0.006)
# of courses taken	0.001*	0.001*	0.001*	0.001*
	(0.001)	(0.001)	(0.001)	(0.001)
Student Educational Expectations (ref: no college)				
Two-year college	-0.037	-0.038	-0.036	-0.038
	(0.023)	(0.023)	(0.023)	(0.023)
Four-year college	0.020	0.019	0.020	0.019
	(0.019)	(0.019)	(0.019)	(0.019)
Post-baccalaureate degree	0.062**	0.061**	0.063**	0.061**
	(0.020)	(0.019)	(0.020)	(0.019)

Table B.3.5, continued.

	Model 1	Model 2	Model 3	Model 4
School Measures				
Urbanicity (ref: urban)				
Suburban	-0.073***	-0.059***	-0.072***	-0.055***
	(0.018)	(0.017)	(0.018)	(0.017)
Rural	-0.081***	-0.073***	-0.081***	-0.067**
	(0.022)	(0.020)	(0.021)	(0.020)
Magnet school flag	0.026	0.019	0.027	0.019
	(0.021)	(0.020)	(0.021)	(0.020)
Vocational school flag	0.006	0.021	0.005	0.020
	(0.030)	(0.029)	(0.029)	(0.029)
Student-teacher ratio	0.004	0.004	0.005	0.004
	(0.003)	(0.003)	(0.003)	(0.003)
% minority	0.001	0.001*	0.001	0.001*
	(0.000)	(0.000)	(0.000)	(0.000)
School Resources				
School in 4th quartile for average parental education	0.027	0.015	0.026	0.014
	(0.018)	(0.017)	(0.018)	(0.017)
% Free/reduced-cost lunch (logged)	-0.016*	-0.010	-0.015	-0.010
	(0.008)	(0.007)	(0.008)	(0.007)
Per-pupil total expenditures 2000-01	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
School size	0.000	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
# of school courses	-0.000*	-0.000	-0.000*	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
School provided course catalog	0.006	-0.002	0.007	-0.001
	(0.033)	(0.032)	(0.033)	(0.032)
School Course Offerings				
School CTE offerings as % of total course offerings		-0.002*		-0.002*
		(0.001)		(0.001)
Academic rigor of math curriculum		0.004***		0.004***
		(0.001)		(0.001)
School AP/IB offerings as % of total academic course offerings		0.001		0.001
		(0.002)		(0.002)
% unemployed in local labor market	-0.003	-0.004	-0.004	-0.005
	(0.005)	(0.005)	(0.005)	(0.005)
N=11,560				

Standard errors in parentheses; *** p<0.001, ** p<0.01, * p<0.05
Note: All models control for state fixed-effects.

Appendix C

Table C.5.1. OLS Regression Predicting the Number of Blue-Collar, Advanced Math, and AP/IB Course Offerings

	# Blue-Collar (logged)	# Advanced Math	# AP/IB
% County Blue-Collar Workers	0.228***	-0.264**	-0.052***
	(0.050)	(0.082)	(0.010)
% County Blue-Collar Workers squared term	-0.004***	0.003*	
	(0.001)	(0.001)	
% Unemployed	-0.062	0.148*	0.035
	(0.036)	(0.059)	(0.034)
% of workers employed in low-wage service job	-0.018	-0.055	-0.041
	(0.032)	(0.052)	(0.029)
School Demographics			
% minority	-0.009*	-0.002	-0.001
	(0.004)	(0.006)	(0.003)
Urbanicity (ref: urban)			
Suburban	0.333*	0.321	-0.059
	(0.154)	(0.253)	(0.146)
Rural	-0.146	0.233	-0.727***
	(0.193)	(0.317)	(0.183)
Region (reference: Northeast)			
West	-0.102	2.960	-0.743
	(1.310)	(2.155)	(1.243)
Midwest	-0.579	4.124	-0.526
	(1.306)	(2.148)	(1.238)
South	0.771	1.919	0.125
	(1.774)	(2.917)	(1.681)
Vocational school flag	0.280	-0.916**	-0.273
	(0.213)	(0.350)	(0.202)
Magnet school flag	-0.165	-0.003	-0.045
	(0.177)	(0.291)	(0.168)
# of school courses	0.007***	0.018***	0.006***
	(0.001)	(0.001)	(0.001)
Per-pupil total expenditures 2000-01	-0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)
% Free/reduced-cost lunch	0.012*	-0.042***	-0.016**
	(0.005)	(0.009)	(0.005)
Constant	54.759***	53.757***	59.278***
	(9.107)	(12.268)	(12.017)
N=540			

*** $p<0.001$, ** $p<0.01$, * $p<0.05$; Standard errors in parentheses.
Note: All models control for state fixed-effects.

Table C.5.2. Coefficients from OLS Regression Predicting # of Blue-Collar Courses Taken (logged)

	Males		Females	
	Model 1	Model 2	Model 1	Model 2
% County Blue Collar Workers				
(ref: 1st Quartile)				
2nd Quartile	0.091	0.078	0.047	0.044
	(0.050)	(0.048)	(0.025)	(0.026)
3rd Quartile	0.116*	0.060	-0.003	-0.019
	(0.058)	(0.056)	(0.022)	(0.023)
4th Quartile	0.240**	0.166*	0.043	0.015
	(0.069)	(0.070)	(0.036)	(0.036)
Course Offerings				
# BC courses offered (logged)		0.148***		0.022*
		(0.022)		(0.011)
# AP/IB offered (logged)		-0.048		-0.032
		(0.031)		(0.017)
# Advanced math offered		0.004		-0.003
		(0.010)		(0.004)
Race/Ethnicity (ref: White)				
Black	-0.194***	-0.201***	-0.024	-0.023
	(0.034)	(0.034)	(0.021)	(0.020)
Asian	-0.064	-0.055	0.002	0.007
	(0.038)	(0.037)	(0.024)	(0.024)
Hispanic	-0.080*	-0.086*	-0.047*	-0.047*
	(0.037)	(0.037)	(0.019)	(0.019)
Other	0.025	0.010	0.020	0.020
	(0.052)	(0.049)	(0.028)	(0.027)
Transfer student	-0.064	-0.069	0.022	0.022
	(0.036)	(0.036)	(0.023)	(0.023)
Parent Education (ref: no PS degree)				
2-year degree	-0.016	-0.011	0.021	0.019
	(0.032)	(0.031)	(0.019)	(0.019)
4-year degree	-0.141***	-0.127***	-0.030*	-0.026*
	(0.024)	(0.023)	(0.013)	(0.013)
Lives with both biological parents	0.014	0.011	0.002	0.004
	(0.021)	(0.021)	(0.011)	(0.010)
Family income	-0.001	-0.001	-0.005	-0.005
	(0.005)	(0.005)	(0.003)	(0.003)
9th grade GPA	-0.116***	-0.114***	-0.008	-0.010
	(0.013)	(0.013)	(0.009)	(0.009)
9th grade math level	0.002	-0.002	0.000	-0.000
	(0.009)	(0.009)	(0.004)	(0.004)
10th grade math achievement test score	-0.006***	-0.005***	-0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
School % receiving free/reduced lunch	0.001	0.000	0.001	0.001
	(0.002)	(0.002)	(0.001)	(0.001)
School % minority	0.000	0.000	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Magnet school	-0.041	-0.023	0.031	0.031
	(0.050)	(0.049)	(0.029)	(0.029)

Table C.5.2, continued.

	Males		Females	
	Model 1	Model 2	Model 1	Model 2
Vocational School	0.121	0.088	0.059	0.054
	(0.069)	(0.069)	(0.042)	(0.041)
Urbanicity (ref: Urban)				
Suburban	0.104*	0.084	-0.008	-0.012
	(0.045)	(0.043)	(0.022)	(0.023)
Rural	0.015	0.026	-0.001	-0.010
	(0.057)	(0.057)	(0.027)	(0.027)
District per-pupil expenditures	0.000	0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
# of courses offered by the school		-0.001*		0.000
		(0.000)		**(0.000)**
School provided course catalog	-0.074	-0.110	-0.050	-0.046
	(0.077)	(0.085)	(0.058)	(0.058)
% County Service Workers	0.010	0.007	-0.000	-0.001
	(0.009)	(0.008)	(0.003)	(0.003)
% County Unemployed	-0.004	0.005	-0.003	-0.002
	(0.010)	(0.010)	(0.005)	(0.004)
Observations	5,730		5,880	

Note: All models include state fixed-effects; standard errors in parentheses.

Table C.5.3. Average Marginal Effects from Logistic Regression Predicting Advanced Math Course-Taking

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
% County Blue Collar Workers						
(ref: 1st Quartile)						
2nd Quartile	-0.001	-0.003	-0.000	-0.032	-0.033	-0.030
	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)	(0.028)
3rd Quartile	-0.077**	-0.061*	-0.077**	-0.072*	-0.056	-0.069*
	(0.028)	(0.027)	(0.028)	(0.030)	(0.030)	(0.030)
4th Quartile	-0.087**	-0.079**	-0.086**	-0.087*	-0.060	-0.082*
	(0.031)	(0.031)	(0.031)	(0.036)	(0.036)	(0.036)
10th grade math achievement test score	0.009***	0.009***	0.009***	0.010***	0.010***	0.010***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
% Blue-Collar Workers X 10th grade math test score (ref: 1st quartile)						
2nd Quartile			-.003*			0.004*
			(.001)			(.002)
3rd Quartile			-.002			-.003
			(.001)			(.002)
4th Quartile			-0.004*			-.005**
			(.001)			-0.002
Course Offerings						
# BC courses offered (logged)		-0.007			-0.008	
		(0.009)			(0.011)	
# Advanced math offered		0.009			0.017**	
		(0.012)			(0.006)	
# AP/IB offered (logged)		0.025***			0.037**	
		(0.005)			(0.013)	
Race/Ethnicity (ref: White)						
Black	0.057**	0.051*	0.058**	0.056*	0.055*	0.055*
	(0.021)	(0.020)	(0.021)	(0.023)	(0.022)	(0.023)
Asian	0.069**	0.058*	0.070**	0.104***	0.094***	0.107***
	(0.024)	(0.023)	(0.024)	(0.025)	(0.025)	(0.026)
Hispanic	0.005	0.011	0.005	0.023	0.026	0.022
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)
Other	0.007	0.010	0.007	-0.033	-0.035	-0.033
	(0.026)	(0.026)	(0.026)	(0.028)	(0.028)	(0.028)
Transfer student	-0.028	-0.031	-0.028	-0.096***	-0.097***	-0.098***
	(0.024)	(0.024)	(0.024)	(0.025)	(0.024)	(0.025)
Parent Education (ref: no PS degree)						
2-year degree	0.006	0.005	0.006	0.002	0.003	0.003
	(0.018)	(0.018)	(0.018)	(0.020)	(0.020)	(0.019)
4-year degree	0.052***	0.048***	0.052***	0.041**	0.036**	0.040**
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Lives with both biological parents	0.016	0.016	0.016	0.029*	0.029*	0.029*
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Family income	0.002	0.002	0.002	0.001	0.001	0.001
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
9th grade GPA	0.140***	0.139***	0.141***	0.140***	0.141***	0.142***
	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)
9th grade math level	0.077***	0.077***	0.077***	0.072***	0.073***	0.072***
	(0.007)	(0.007)	(0.007)	(0.008)	(0.008)	(0.008)
School % receiving free/reduced lunch	-0.001	-0.000	-0.001	-0.001	-0.000	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)

Table C.5.3, continued.

	Males			Females		
	Model 1	Model 2	Model 3	Model 1	Model 2	Model 3
School % minority	0.001	0.001	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Magnet school	0.001	0.002	0.000	0.033	0.037	0.035
	(0.025)	(0.024)	(0.026)	(0.026)	(0.026)	(0.026)
Vocational School	0.014	0.026	0.009	0.037	0.047	0.035
	(0.032)	(0.032)	(0.032)	(0.035)	(0.034)	(0.034)
Urbanicity (ref: Urban)						
Suburban	-0.074***	-0.078***	-0.076***	-0.090***	-0.091***	-0.093***
	(0.020)	(0.019)	(0.020)	(0.023)	(0.023)	(0.023)
Rural	-0.075**	-0.087***	-0.077**	-0.109***	-0.104***	-0.112***
	(0.025)	(0.024)	(0.025)	(0.027)	(0.028)	(0.027)
District per-pupil expenditures	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
# Courses offered by the school		-0.000***			-0.000**	
		(0.000)			(0.000)	
School provided course catalog	0.005	-0.015	0.004	0.059	0.050	0.056
	(0.042)	(0.040)	(0.041)	(0.045)	(0.041)	(0.044)
% County Service Workers	-0.004	-0.003	-0.003	-0.001	0.000	-0.000
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
% County Unemployed	0.003	0.000	0.002	0.002	-0.000	0.002
	(0.005)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
Constant						
Observations		5,699			5,860	

*** p<0.001, ** p<0.01, * p<0.05; standard errors in parentheses.

Note: All models include state fixed-effects.

Appendix D

Table D.6.2: Average Marginal Effects from Multinomial Logistic Regressions Predicting Males' Post-High School Destinations

	Model 1 - Background					Model 2 - Course Offerings					Model 3 - Course-Taking				
	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col
% County Blue Collar Workers															
(ref: 1st Quartile)															
2nd Quartile	-0.006	0.017	-0.017	0.013	-0.007	-0.006	0.018	-0.018	0.016	-0.009	-0.002	0.018	-0.020	0.014	-0.010
	(0.024)	(0.010)	(0.019)	(0.018)	(0.020)	(0.022)	(0.010)	(0.019)	(0.019)	(0.020)	(0.022)	(0.010)	(0.019)	(0.019)	(0.020)
3rd Quartile	-0.054*	0.013	-0.006	0.067**	-0.019	-0.042	0.012	-0.008	0.060**	-0.022	-0.027	0.013	-0.014	0.056**	-0.027
	(0.024)	(0.011)	(0.022)	(0.021)	(0.021)	(0.025)	(0.011)	(0.023)	(0.021)	(0.021)	(0.024)	(0.010)	(0.023)	(0.021)	(0.022)
4th Quartile	-0.072**	0.016	-0.026	0.089***	-0.006	-0.044	0.019	-0.029	0.064**	-0.010	-0.017	0.019	-0.036	0.050*	-0.016
	(0.028)	(0.012)	(0.023)	(0.022)	(0.024)	(0.029)	(0.013)	(0.025)	(0.021)	(0.025)	(0.029)	(0.013)	(0.025)	(0.021)	(0.025)
Course-taking															
# BC courses (logged)											-0.065***	-0.008	0.018	0.057***	-0.001
											(0.011)	(0.006)	(0.010)	(0.009)	(0.010)
Advanced math											0.132***	0.001	-0.043*	-0.051***	-0.038*
											(0.017)	(0.010)	(0.018)	(0.015)	(0.016)
Course Offerings															
# BC courses offered (logged)						-0.018	0.001	0.001	0.007	0.009	-0.009	0.002	-0.001	-0.002	0.011
						(0.010)	(0.005)	(0.009)	(0.008)	(0.008)	(0.010)	(0.005)	(0.009)	(0.008)	(0.008)
# AP/IB offered (logged)						0.026*	0.002	-0.006	-0.021**	-0.001	0.015	0.002	-0.001	-0.017*	0.002
						(0.011)	(0.004)	(0.010)	(0.008)	(0.009)	(0.010)	(0.004)	(0.010)	(0.008)	(0.009)
# Advanced math offered						0.009*	-0.004	-0.004	-0.003	0.001	0.005	-0.004	-0.002	-0.001	0.003
						(0.004)	(0.002)	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)	(0.004)
# Courses offered by the school						-0.000	0.000	0.000	-0.000	-0.000	0.000	0.000	0.000	-0.000	-0.000
						(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GED status	-0.173**	0.040***	0.083**	0.077**	-0.025	-0.175***	0.039**	0.083**	0.079**	-0.026	-0.159**	0.038**	0.076*	0.078**	-0.033
	(0.053)	(0.012)	(0.032)	(0.025)	(0.034)	(0.053)	(0.012)	(0.031)	(0.025)	(0.034)	(0.052)	(0.012)	(0.031)	(0.025)	(0.034)
School provided course catalog						-0.003	-0.014	-0.022	0.035	0.004	-0.008	-0.015	-0.021	0.042	0.002
						(0.030)	(0.010)	(0.030)	(0.026)	(0.027)	(0.028)	(0.010)	(0.030)	(0.026)	(0.027)
% County Service Workers	0.002	-0.003	-0.001	0.004	-0.002	0.004	-0.003	-0.001	0.003	-0.003	0.005	-0.002	-0.001	0.002	-0.003
	(0.004)	(0.002)	(0.004)	(0.003)	(0.003)	(0.004)	(0.002)	(0.004)	(0.003)	(0.003)	(0.004)	(0.002)	(0.004)	(0.003)	(0.003)
% County Unemployed	0.014**	-0.001	-0.003	-0.007	-0.004	0.013*	-0.001	-0.002	-0.007	-0.003	0.014**	-0.001	-0.002	-0.008*	-0.003
	(0.005)	(0.002)	(0.004)	(0.004)	(0.004)	(0.005)	(0.002)	(0.004)	(0.004)	(0.004)	(0.005)	(0.002)	(0.004)	(0.004)	(0.004)
Inverse Mills Ratio	0.049	0.003	0.122	0.031	-0.204*	0.024	0.001	0.126	0.053	-0.205*	0.309**	-0.006	0.034	-0.041	-0.296***
	(0.113)	(0.034)	(0.079)	(0.066)	(0.082)	(0.113)	(0.035)	(0.079)	(0.066)	(0.082)	(0.095)	(0.037)	(0.080)	(0.069)	(0.085)
Race/Ethnicity (ref: White)															
Black	0.115***	0.008	0.017	0.085***	-0.055*	0.115***	0.008	0.018	-0.085***	-0.055*	0.099***	0.005	0.020	-0.067**	-0.058*
	(0.026)	(0.011)	(0.022)	(0.023)	(0.024)	(0.027)	(0.011)	(0.022)	(0.022)	(0.024)	(0.026)	(0.011)	(0.022)	(0.022)	(0.024)
Asian	0.081**	0.029*	-0.082*	-0.070*	0.041	0.077**	0.030*	-0.079*	-0.069*	0.041	0.064**	0.028*	-0.076*	-0.057	0.041
	(0.025)	(0.013)	(0.034)	(0.031)	(0.022)	(0.025)	(0.012)	(0.034)	(0.030)	(0.022)	(0.025)	(0.013)	(0.034)	(0.031)	(0.023)
Hispanic	-0.002	-0.001	0.007	-0.025	0.021	-0.001	-0.002	0.007	-0.026	0.021	-0.012	-0.002	0.010	-0.019	0.023
	(0.027)	(0.012)	(0.024)	(0.020)	(0.022)	(0.027)	(0.012)	(0.025)	(0.020)	(0.022)	(0.026)	(0.012)	(0.024)	(0.020)	(0.022)
Other	0.049	-0.010	0.071*	-0.033	-0.076*	0.051	-0.011	0.071*	-0.037	-0.075*	0.035	-0.010	0.076**	-0.030	-0.071*
	(0.032)	(0.016)	(0.029)	(0.027)	(0.032)	(0.032)	(0.016)	(0.029)	(0.027)	(0.032)	(0.031)	(0.016)	(0.029)	(0.027)	(0.031)
Transfer student	-0.030	0.014	0.066**	-0.037	-0.013	-0.028	0.014	0.065**	-0.038	-0.012	-0.044	0.014	0.069**	-0.027	-0.011
	(0.030)	(0.013)	(0.025)	(0.025)	(0.029)	(0.029)	(0.012)	(0.025)	(0.025)	(0.029)	(0.028)	(0.012)	(0.025)	(0.025)	(0.029)

Table D.6.2, continued.	Model 1 - Background					Model 2 - Course Offerings					Model 3 - Course-Taking				
	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col
Parent Education (ref: no PS degree)															
2-year degree	0.004	-0.004	-0.006	-0.021	0.028	0.002	-0.004	-0.006	-0.019	0.027	0.008	-0.005	-0.008	-0.022	0.026
	(0.022)	(0.012)	(0.020)	(0.018)	(0.020)	(0.022)	(0.012)	(0.020)	(0.018)	(0.020)	(0.021)	(0.012)	(0.020)	(0.017)	(0.020)
4-year degree	0.104***	-0.002	-0.043*	0.070***	0.011	0.100***	-0.002	-0.043*	-0.067***	0.012	0.088***	-0.003	-0.039*	-0.059***	0.013
	(0.017)	(0.008)	(0.018)	(0.015)	(0.016)	(0.017)	(0.008)	(0.018)	(0.014)	(0.016)	(0.017)	(0.008)	(0.018)	(0.014)	(0.016)
Lives with both biological parents	0.021	-0.000	0.006	0.042***	0.016	0.022	-0.000	0.005	-0.042***	0.015	0.023	-0.001	0.004	-0.040**	0.014
	(0.015)	(0.007)	(0.015)	(0.013)	(0.013)	(0.015)	(0.007)	(0.015)	(0.013)	(0.013)	(0.014)	(0.007)	(0.014)	(0.012)	(0.013)
Family income	0.013**	-0.005**	-0.004	-0.003	-0.002	0.012**	-0.004**	-0.003	-0.002	-0.002	0.014***	-0.004**	-0.004	-0.003	-0.003
	(0.004)	(0.002)	(0.004)	(0.003)	(0.003)	(0.004)	(0.002)	(0.003)	(0.003)	(0.003)	(0.004)	(0.002)	(0.003)	(0.003)	(0.003)
9th grade GPA	0.150***	-0.008	-0.039**	0.052***	-0.050***	0.148***	-0.009	-0.039**	-0.050***	-0.050***	0.137***	-0.009	-0.036**	-0.042***	-0.049***
	(0.013)	(0.007)	(0.013)	(0.011)	(0.011)	(0.013)	(0.007)	(0.013)	(0.011)	(0.011)	(0.012)	(0.007)	(0.014)	(0.011)	(0.012)
9th grade math level	0.034***	-0.008**	-0.009	-0.008	-0.009	0.034***	-0.008**	-0.008	-0.008	-0.009	0.026***	-0.008**	-0.006	-0.004	-0.008
	(0.006)	(0.003)	(0.006)	(0.005)	(0.005)	(0.006)	(0.003)	(0.006)	(0.005)	(0.005)	(0.005)	(0.003)	(0.006)	(0.005)	(0.005)
10th grade math achievement test score	0.007***	-0.001*	-0.002	-0.002**	-0.002**	0.007***	-0.001*	-0.001	-0.002**	-0.002**	0.006***	-0.001*	-0.001	-0.002	-0.002**
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
School % free/reduced lunch	-0.004***	0.001*	0.000	0.002***	0.001	-0.003***	0.001	0.000	0.002**	0.001	-0.004***	0.001	0.000	0.002**	0.001
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)
School % minority	0.002***	0.000	-0.000	-0.001**	-0.001	0.002***	0.000	-0.000	-0.001*	-0.001	0.002***	0.000	-0.000	-0.001*	-0.001
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Magnet school	-0.009	-0.005	0.001	0.017	-0.005	-0.009	-0.003	0.002	0.015	-0.005	0.004	-0.003	-0.001	0.008	-0.007
	(0.024)	(0.011)	(0.020)	(0.022)	(0.021)	(0.024)	(0.011)	(0.020)	(0.022)	(0.021)	(0.023)	(0.011)	(0.020)	(0.022)	(0.021)
Vocational School	0.014	-0.021	-0.050*	0.017	0.039	0.031	-0.023	-0.054*	0.008	0.037	0.026	-0.022	-0.053*	0.009	0.040
	(0.027)	(0.013)	(0.025)	(0.018)	(0.023)	(0.026)	(0.014)	(0.025)	(0.018)	(0.023)	(0.025)	(0.014)	(0.025)	(0.017)	(0.024)
Urbanicity (ref: Urban)															
Suburban	-0.040*	0.004	0.005	0.018	0.014	-0.039*	0.003	0.005	0.018	0.013	-0.012	0.004	-0.003	0.003	0.009
	(0.020)	(0.009)	(0.018)	(0.017)	(0.016)	(0.020)	(0.010)	(0.018)	(0.017)	(0.016)	(0.019)	(0.010)	(0.018)	(0.017)	(0.016)
Rural	-0.014	-0.003	0.014	0.003	0.000	-0.008	-0.003	0.012	-0.003	0.002	0.015	-0.003	0.004	-0.013	-0.002
	(0.025)	(0.011)	(0.024)	(0.020)	(0.020)	(0.027)	(0.011)	(0.024)	(0.020)	(0.021)	(0.026)	(0.011)	(0.024)	(0.021)	(0.021)
District per-pupil expenditures	-0.000	-0.000	0.000	-0.000	0.000	-0.000	-0.000	0.000	-0.000	0.000	-0.000	-0.000	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations = 4,660															

Note: All models include state fixed-effects; standard errors in parentheses
*** p<0.001, ** p<0.01, * p<0.05

Table D.6.3: Average Marginal Effects from Multinomial Logistic Regressions Predicting Females' Post-High School Destinations

	Model 1 - Background					Model 2 - Course Offerings					Model 3 - Course-Taking				
	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col
% County Blue Collar Workers															
(ref: 1st Quartile)															
2nd Quartile	-0.060**	0.004	0.019	0.005	0.032	-0.059**	0.005	0.013	0.006	0.035	-0.050*	0.004	0.009	0.006	0.031
	(0.021)	(0.011)	(0.022)	(0.006)	(0.019)	(0.021)	(0.011)	(0.022)	(0.007)	(0.019)	(0.020)	(0.012)	(0.021)	(0.007)	(0.019)
3rd Quartile	-0.050*	-0.001	0.038	-0.000	0.013	-0.040	-0.003	0.033	-0.001	0.011	-0.032	-0.003	0.029	-0.002	0.008
	(0.024)	(0.011)	(0.024)	(0.006)	(0.020)	(0.024)	(0.012)	(0.024)	(0.006)	(0.020)	(0.024)	(0.012)	(0.025)	(0.006)	(0.020)
4th Quartile	-0.107***	0.018	0.031	0.012	0.045	-0.073**	0.008	0.027	0.006	0.032	-0.055*	0.007	0.018	0.006	0.024
	(0.027)	(0.015)	(0.027)	(0.009)	(0.024)	(0.027)	(0.015)	(0.029)	(0.008)	(0.024)	(0.026)	(0.015)	(0.029)	(0.008)	(0.023)
Course-taking															
# BC courses (logged)											-0.061**	0.014	0.018	0.009	0.019
											(0.020)	(0.009)	(0.021)	(0.005)	(0.017)
Advanced math											0.150***	-0.011	-0.078***	0.002	-0.063***
											(0.014)	(0.010)	(0.017)	(0.005)	(0.015)
Course Offerings															
# BC courses offered (logged)						-0.016	0.001	0.012	0.004	-0.001	-0.015	0.001	0.011	0.004	-0.001
						(0.009)	(0.004)	(0.009)	(0.002)	(0.009)	(0.009)	(0.004)	(0.009)	(0.002)	(0.009)
# AP/IB offered (logged)						0.039***	-0.012*	-0.005	-0.003	-0.020	0.035***	-0.011*	-0.003	-0.003	-0.018
						(0.010)	(0.005)	(0.011)	(0.003)	(0.010)	(0.010)	(0.005)	(0.011)	(0.003)	(0.010)
# Advanced math offered						0.002	0.001	0.003	0.001	-0.007	-0.000	0.001	0.004	0.001	-0.006
						(0.004)	(0.002)	(0.004)	(0.001)	(0.004)	(0.004)	(0.002)	(0.004)	(0.001)	(0.004)
# Courses offered by the school						-0.000	0.000	-0.000	-0.000	0.000	-0.000	0.000	-0.000	-0.000	0.000
						(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GED status	-0.311***	0.078***	0.207***	0.010	0.016	-0.310***	0.078***	0.205***	0.010	0.017	-0.262***	0.075***	0.182***	0.009	-0.004
	(0.071)	(0.012)	(0.038)	(0.008)	(0.050)	(0.071)	(0.012)	(0.038)	(0.008)	(0.050)	(0.069)	(0.012)	(0.038)	(0.008)	(0.049)
School provided course catalog						0.010	-0.004	0.009	0.037*	-0.052	-0.004	-0.002	0.014	0.039*	-0.047
						(0.031)	(0.015)	(0.029)	(0.016)	(0.029)	(0.032)	(0.015)	(0.028)	(0.017)	(0.030)
% County Service Workers	0.003	-0.001	0.001	-0.001	-0.002	0.005	-0.001	0.000	-0.002	-0.002	0.004	-0.001	0.001	-0.002	-0.002
	(0.003)	(0.002)	(0.004)	(0.001)	(0.003)	(0.003)	(0.002)	(0.004)	(0.001)	(0.003)	(0.003)	(0.002)	(0.004)	(0.001)	(0.003)
% County Unemployed	0.011*	-0.001	-0.010*	0.002	-0.002	0.010*	-0.001	-0.009	0.003	-0.003	0.011**	-0.001	-0.009*	0.003*	-0.003
	(0.004)	(0.002)	(0.005)	(0.001)	(0.004)	(0.004)	(0.002)	(0.005)	(0.001)	(0.004)	(0.004)	(0.002)	(0.005)	(0.001)	(0.004)
Inverse Mills Ratio	-0.222*	0.045	0.247**	0.029	-0.098	-0.173	0.034	0.234**	0.025	-0.119	0.200*	0.007	0.058	0.023	-0.289***
	(0.108)	(0.031)	(0.077)	(0.019)	(0.075)	(0.108)	(0.031)	(0.077)	(0.019)	(0.075)	(0.093)	(0.036)	(0.075)	(0.020)	(0.078)
Race/Ethnicity (ref: White)															
Black	0.097***	0.004	-0.044	-0.015*	-0.042	0.099***	0.003	-0.043	-0.016*	-0.044*	0.100***	0.003	-0.044	-0.016*	-0.043*
	(0.025)	(0.012)	(0.024)	(0.007)	(0.022)	(0.025)	(0.012)	(0.023)	(0.007)	(0.021)	(0.025)	(0.011)	(0.023)	(0.007)	-0.021
Asian	0.049	0.020	-0.074*	0.004	0.001	0.043	0.022	-0.075*	0.003	0.007	0.026	0.023	-0.065*	0.003	0.014
	(0.026)	(0.016)	(0.032)	(0.009)	(0.028)	(0.026)	(0.016)	(0.032)	(0.009)	(0.028)	(0.026)	(0.016)	(0.032)	(0.009)	(0.028)
Hispanic	-0.010	0.007	-0.000	0.004	-0.000	-0.011	0.008	-0.002	0.004	0.002	-0.016	0.008	0.001	0.004	0.003
	(0.027)	(0.011)	(0.025)	(0.008)	(0.022)	(0.027)	(0.011)	(0.025)	(0.008)	(0.022)	(0.027)	(0.011)	(0.024)	(0.008)	(0.022)
Other	0.096**	0.036*	-0.011	-0.005	-0.116***	0.094**	0.035*	-0.010	-0.004	-0.116***	0.099**	0.034*	-0.013	-0.003	-0.117***
	(0.035)	(0.014)	(0.031)	(0.009)	(0.035)	(0.035)	(0.014)	(0.030)	(0.009)	(0.035)	(0.035)	(0.014)	(0.030)	(0.009)	(0.034)
Transfer student	-0.092**	0.019	0.042	0.006	0.025	-0.092**	0.020	0.040	0.007	0.026	-0.079**	0.019	0.033	0.006	0.020
	(0.029)	(0.012)	(0.023)	(0.007)	(0.024)	(0.028)	(0.012)	(0.023)	(0.007)	(0.023)	(0.027)	(0.012)	(0.023)	(0.007)	(0.023)

Table D.6.3, continued.	Model 1 - Background					Model 2 - Course Offerings					Model 3 - Course-Taking				
	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col	4-year col	Not working	Other job	BC job	2-year col
Parent Education (ref: no PS degree)															
2-year degree	0.020	-0.004	-0.046*	-0.008	0.039	0.021	-0.005	-0.048*	-0.009	0.040*	0.025	-0.006	-0.049*	-0.009	0.038
	(0.019)	(0.011)	(0.021)	(0.007)	(0.020)	(0.019)	(0.011)	(0.021)	(0.007)	(0.020)	(0.019)	(0.011)	(0.022)	(0.007)	(0.020)
4-year degree	0.118***	-0.018	-0.060***	-0.009	-0.032*	0.112***	-0.017	-0.060***	-0.009	-0.027	0.111***	-0.017	-0.059***	-0.009	-0.026
	(0.013)	(0.009)	(0.016)	(0.006)	(0.015)	(0.013)	(0.009)	(0.016)	(0.006)	(0.015)	(0.013)	(0.009)	(0.016)	(0.006)	(0.015)
Lives with both biological parents	0.028*	-0.009	-0.019	-0.002	0.003	0.028*	-0.009	-0.020	-0.001	0.002	0.032*	-0.009	-0.022	-0.001	0.000
	(0.014)	(0.006)	(0.014)	(0.004)	(0.013)	(0.014)	(0.006)	(0.014)	(0.004)	(0.013)	(0.014)	(0.007)	(0.014)	(0.004)	(0.013)
Family income	0.012***	-0.003*	-0.006*	-0.001	-0.001	0.011***	-0.003*	-0.007*	-0.001	-0.000	0.011***	-0.003*	-0.006*	-0.001	0.000
	(0.003)	(0.001)	(0.003)	(0.001)	(0.003)	(0.003)	(0.001)	(0.003)	(0.001)	(0.003)	(0.003)	(0.001)	(0.003)	(0.001)	(0.003)
9th grade GPA	0.136***	-0.007	-0.069***	-0.003	-0.058***	0.141***	-0.008	-0.070***	-0.003	-0.060***	0.139***	-0.009	-0.069***	-0.003	-0.058***
	(0.012)	(0.006)	(0.012)	(0.003)	(0.011)	(0.012)	(0.006)	(0.012)	(0.003)	(0.011)	(0.011)	(0.006)	(0.012)	(0.003)	(0.011)
9th grade math level	0.021***	-0.007**	-0.012*	-0.002	0.001	0.022***	-0.008**	-0.013*	-0.002	0.000	0.014**	-0.007**	-0.009	-0.002	0.004
	(0.006)	(0.003)	(0.006)	(0.002)	(0.006)	(0.006)	(0.003)	(0.006)	(0.002)	(0.005)	(0.005)	(0.003)	(0.006)	(0.002)	(0.006)
10th grade math achievement test score	0.008***	-0.002***	-0.002*	-0.000	-0.004***	0.008***	-0.002***	-0.002*	-0.000	-0.004***	0.007***	-0.002***	-0.001	-0.000	-0.004***
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
School % free/reduced lunch	-0.003***	0.001*	0.000	-0.000	0.001*	-0.002**	0.001*	0.000	-0.000	0.001	-0.002**	0.001*	0.001	-0.000	0.001
	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
School % minority	0.002***	-0.000	-0.001	0.000*	-0.001**	0.002***	-0.000	-0.000	0.000*	-0.001**	0.002**	-0.000	-0.000	0.000*	-0.001**
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Magnet school	0.026	0.003	-0.051*	0.002	0.021	0.026	0.002	-0.050*	0.002	0.021	0.019	0.001	-0.045	0.001	0.024
	(0.021)	(0.012)	(0.024)	(0.007)	(0.021)	(0.021)	(0.012)	(0.024)	(0.007)	(0.021)	(0.021)	(0.012)	(0.024)	(0.007)	(0.021)
Vocational School	-0.004	0.040***	0.009	0.012*	-0.057*	0.001	0.039**	0.008	0.013*	-0.062*	-0.000	0.038**	0.010	0.013*	-0.061*
	(0.025)	(0.012)	(0.028)	(0.006)	(0.025)	(0.026)	(0.012)	(0.029)	(0.006)	(0.026)	(0.025)	(0.012)	(0.028)	(0.006)	(0.026)
Urbanicity (ref: Urban)															
Suburban	-0.034	-0.002	0.002	0.002	0.032*	-0.030	-0.003	0.001	-0.002	0.034*	-0.015	-0.004	-0.007	-0.001	0.028
	(0.019)	(0.009)	(0.018)	(0.005)	(0.016)	(0.019)	(0.009)	(0.019)	(0.005)	(0.016)	(0.018)	(0.009)	(0.019)	(0.005)	(0.016)
Rural	-0.026	0.004	-0.021	0.014	0.029	-0.014	-0.001	-0.017	0.010	0.023	0.005	-0.003	-0.029	0.010	0.016
	(0.025)	(0.013)	(0.023)	(0.008)	(0.021)	(0.026)	(0.013)	(0.023)	(0.008)	(0.021)	(0.026)	(0.013)	(0.024)	(0.009)	(0.021)
District per-pupil expenditures	-0.000	-0.000	-0.000	-0.000	0.000	-0.000	-0.000	-0.000	-0.000	0.000	-0.000	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations = 5,190															

Note: All models include state fixed-effects; standard errors in parentheses

*** p<0.001, ** p<0.01, * p<0.05

Table D.Figure 6.2: Multinomial Logistic Regressions (Average Marginal Effects) Predicting Occupations Eight Years After HS Graduation

	Males					Females				
	White-collar	Service	Blue-collar	Not working	Other Non-prof	White-collar	Service	Blue-collar	Not working	Other Non-prof
% County Blue Collar Workers (ref: 1st Quartile)										
2nd Quartile	-0.003	-0.010	0.029	-0.029	0.012	-0.068**	0.028	-0.002	0.021	0.021
	(0.026)	(0.014)	(0.022)	(0.017)	(0.023)	(0.023)	(0.021)	(0.008)	(0.020)	(0.019)
3rd Quartile	-0.050	-0.036*	0.080***	0.008	-0.001	-0.030	-0.021	0.000	0.029	0.022
	(0.027)	(0.016)	(0.023)	(0.019)	(0.024)	(0.023)	(0.021)	(0.009)	(0.021)	(0.022)
4th Quartile	-0.037	-0.031	0.098***	0.001	-0.032	-0.055*	-0.012	0.024*	0.055*	-0.012
	(0.032)	(0.018)	(0.027)	(0.022)	(0.024)	(0.027)	(0.024)	(0.012)	(0.025)	(0.025)
% County Service Workers	0.000	0.007***	-0.005	0.004	-0.006	-0.006	0.004	0.000	0.003	-0.002
	(0.005)	(0.002)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)	(0.002)	(0.003)	(0.003)
% County Unemployed	0.005	-0.007**	0.001	-0.005	0.006	0.004	0.001	-0.000	-0.005	0.000
	(0.005)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.002)	(0.004)	(0.004)
Inverse Mills Ratio	-0.064	-0.008	-0.094	0.135	0.031	-0.036	-0.099	0.025	0.222**	-0.112
	(0.121)	(0.054)	(0.089)	(0.072)	(0.090)	(0.100)	(0.074)	(0.030)	(0.069)	(0.077)
Enrolled in PS courses	-0.053**	0.027*	-0.089***	0.083***	0.033	-0.025	0.029*	-0.001	0.000	-0.004
	(0.018)	(0.012)	(0.020)	(0.013)	(0.018)	(0.017)	(0.014)	(0.007)	(0.015)	(0.017)
GED Status	-0.090	0.059**	-0.007	0.042	-0.004	-0.013	0.010	-0.004	0.035	-0.029
	(0.049)	(0.019)	(0.031)	(0.024)	(0.038)	(0.048)	(0.032)	(0.013)	(0.031)	(0.041)
Race/Ethnicity (ref: White)										
Black	0.015	0.004	-0.060*	0.023	0.019	0.008	-0.007	0.012	-0.015	0.003
	(0.032)	(0.018)	(0.027)	(0.021)	(0.027)	(0.028)	(0.021)	(0.009)	(0.023)	(0.025)
Asian	0.034	0.031	-0.129***	0.086***	-0.022	0.009	-0.027	-0.018	0.056*	-0.020
	(0.026)	(0.018)	(0.038)	(0.020)	(0.030)	(0.029)	(0.025)	(0.015)	(0.025)	(0.030)
Hispanic	-0.032	0.008	0.014	0.000	0.010	-0.014	-0.004	-0.008	-0.016	0.042
	(0.029)	(0.018)	(0.027)	(0.023)	(0.027)	(0.025)	(0.024)	(0.014)	(0.024)	(0.025)
Other	-0.054	-0.004	0.001	0.069**	-0.012	-0.069	0.040	-0.009	0.044	-0.006
	(0.036)	(0.022)	(0.035)	(0.025)	(0.035)	(0.036)	(0.026)	(0.014)	(0.028)	(0.038)
Transfer student	-0.043	-0.002	-0.004	0.022	0.027	-0.098**	0.003	0.015	0.044	0.037
	(0.036)	(0.021)	(0.032)	(0.024)	(0.031)	(0.032)	(0.023)	(0.011)	(0.023)	(0.027)
Parent Education (ref: no PS)										
Some college	0.003	-0.008	-0.048*	0.026	0.027	0.019	0.008	-0.004	-0.005	-0.018
	(0.025)	(0.015)	(0.020)	(0.019)	(0.022)	(0.021)	(0.017)	(0.007)	(0.018)	(0.020)
2-year degree	0.012	-0.009	-0.007	0.050*	-0.047	0.041	-0.008	-0.017	0.037	-0.053*
	(0.028)	(0.018)	(0.024)	(0.022)	(0.028)	(0.026)	(0.022)	(0.011)	(0.022)	(0.025)

Table D.Figure 6.2, continued	Males					Females				
	White-collar	Service	Blue-collar	Not working	Other Non-prof	White-collar	Service	Blue-collar	Not working	Other Non-prof
4-year degree	0.066**	0.011	-0.120***	0.036	0.007	0.033	0.002	-0.007	0.004	-0.033
	(0.024)	(0.015)	(0.023)	(0.019)	(0.024)	(0.022)	(0.019)	(0.008)	(0.020)	(0.022)
Advanced degree	0.072**	-0.001	-0.106***	0.050*	-0.016	0.041	-0.024	-0.010	0.024	-0.031
	(0.026)	(0.017)	(0.027)	(0.020)	(0.026)	(0.024)	(0.022)	(0.010)	(0.022)	(0.025)
Lives with both biological parents	0.007	-0.003	-0.015	0.015	-0.004	0.039*	-0.025	-0.005	-0.015	0.005
	(0.018)	(0.012)	(0.016)	(0.015)	(0.017)	(0.016)	(0.013)	(0.006)	(0.014)	(0.016)
Family income	0.005	-0.003	-0.004	-0.004	0.006	0.006	-0.003	-0.001	0.001	-0.003
	(0.004)	(0.003)	(0.004)	(0.003)	(0.004)	(0.004)	(0.003)	(0.001)	(0.003)	(0.004)
9th grade GPA	0.068***	0.001	-0.064***	0.006	-0.011	0.091***	-0.050***	-0.003	-0.007	-0.032*
	(0.013)	(0.008)	(0.013)	(0.011)	(0.012)	(0.014)	(0.012)	(0.005)	(0.012)	(0.013)
9th grade math level	0.003	0.003	-0.012*	-0.002	0.008	0.015*	0.001	0.000	-0.008	-0.009
	(0.006)	(0.004)	(0.006)	(0.005)	(0.006)	(0.006)	(0.005)	(0.002)	(0.005)	(0.006)
10th math achievement test score	0.006***	-0.002**	-0.003***	-0.000	-0.000	0.005***	-0.003***	-0.000	-0.002**	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
School % free/reduced lunch	-0.000	0.000	0.001	0.001	-0.001	-0.000	0.001	-0.000	-0.000	-0.001
	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
School % minority	0.000	-0.000	-0.000	-0.000	0.000	0.000	-0.001***	0.000	0.000	0.001*
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Magnet school	0.027	-0.004	-0.009	0.010	-0.024	0.017	-0.008	-0.013	-0.037	0.042*
	(0.025)	(0.014)	(0.026)	(0.019)	(0.024)	(0.022)	(0.020)	(0.010)	(0.021)	(0.021)
Vocational School	0.011	0.002	-0.011	-0.037	0.035	-0.054*	-0.021	0.010	0.047*	0.018
	(0.024)	(0.017)	(0.027)	(0.023)	(0.026)	(0.025)	(0.028)	(0.010)	(0.022)	(0.020)
Urbanicity (ref: Urban)										
Suburban	0.017	-0.006	0.027	-0.030	-0.008	-0.008	-0.001	-0.004	-0.005	0.018
	(0.023)	(0.013)	(0.021)	(0.016)	(0.021)	(0.019)	(0.017)	(0.009)	(0.017)	(0.018)
Rural	0.052	-0.010	0.012	-0.048*	-0.007	-0.005	-0.011	0.008	0.006	0.001
	(0.031)	(0.017)	(0.025)	(0.020)	(0.025)	(0.023)	(0.020)	(0.011)	(0.021)	(0.023)
District per-pupil expenditures	0.000	0.000	0.000	-0.000	0.000	0.000	0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	4,230					4,990				

Note: All models include state fixed-effects; standard errors in parenthese

*** p<0.001, ** p<0.01, * p<0.05

Table D.6.5. Coefficients from OLS Regression Predicting Logged Wages in 2011

	Model 1-Background		Model 2-Course Offerings		Model 3-Course-Taking		Model 4-Post High School	
	Males	Females	Males	Females	Males	Females	Males	Females
% County Blue Collar Workers								
(ref: 1st Quartile)								
2nd Quartile	0.034	-0.060*	0.033	-0.062*	0.03	-0.061*	0.001	-0.027
	(0.030)	(0.027)	(0.029)	(0.026)	(0.03)	(0.03)	(0.028)	(0.024)
3rd Quartile	0.002	-0.061*	0.004	-0.050	-0.001	-0.048	-0.019	-0.041
	(0.031)	(0.026)	(0.031)	(0.026)	(0.03)	(0.03)	(0.029)	(0.024)
4th Quartile	0.017	-0.066*	0.028	-0.032	0.022	-0.027	-0.006	-0.014
	(0.035)	(0.030)	(0.035)	(0.030)	(0.04)	(0.03)	(0.032)	(0.028)
Course Offerings								
# BC courses offered (logged)			0.003	-0.006	-0.004	-0.005	-0.002	-0.006
			(0.011)	(0.011)	(0.01)	(0.01)	(0.011)	(0.010)
# Advanced math offered			0.019	0.007	0.002	0.005	0.002	0.006
			(0.012)	(0.005)	(0.01)	(0.01)	(0.005)	(0.004)
# AP/IB offered (logged)			0.004	0.042***	0.02	0.039***	0.012	0.026*
			(0.005)	(0.011)	(0.01)	(0.01)	(0.012)	(0.010)
Course-taking								
# BC courses (logged)					0.055***	0.004	0.045***	0.023
					(0.01)	(0.02)	(0.013)	(0.021)
Advanced math by end of high school					0.033	0.111***	0.023	0.063**
					(0.02)	(0.02)	(0.023)	(0.019)
Highest Education Attempted by 2006 (ref: no college attendance)								
Two-year college							0.023	0.049*
							(0.028)	(0.021)
Four-year college							0.059*	0.098***
							(0.026)	(0.020)
Employment and Occupation in 2012 (ref: white-collar)								
Low-wage service							-0.500***	-0.436***
							(0.035)	(0.027)
Blue-collar							-0.047	-0.209***
							(0.025)	(0.041)
Not working							-0.402***	-0.436***
							(0.031)	(0.019)
Other non-professional							-0.184***	-0.246***
							(0.024)	(0.017)
Race/Ethnicity (ref: White)								
Black	0.019	0.085***	0.017	0.087***	0.025	0.080**	0.005	0.067*
	(0.037)	(0.026)	(0.037)	(0.026)	(0.04)	(0.03)	(0.033)	(0.026)
Asian	0.332***	0.075	0.327***	0.071	0.327***	0.067	0.272***	0.041
	(0.052)	(0.040)	(0.053)	(0.040)	(0.05)	(0.04)	(0.049)	(0.037)
Hispanic	0.075*	0.043	0.073*	0.041	0.073*	0.041	0.057	0.036
	(0.037)	(0.027)	(0.037)	(0.027)	(0.04)	(0.03)	(0.035)	(0.024)
Other	-0.026	0.008	-0.026	0.011	-0.027	0.02	-0.017	0.035
	(0.041)	(0.040)	(0.041)	(0.040)	(0.04)	(0.04)	(0.041)	(0.038)
Parent Education (ref: no PS degree)								
2-year degree	-0.071*	0.005	-0.071*	0.005	-0.070*	0.006	-0.044	0.000
	(0.029)	(0.026)	(0.029)	(0.026)	(0.03)	(0.03)	(0.028)	(0.024)
4-year degree	-0.032	0.016	-0.034	0.009	-0.03	0.006	-0.016	-0.012
	(0.021)	(0.017)	(0.021)	(0.017)	(0.02)	(0.02)	(0.020)	(0.016)
Lives with both biological parents	-0.063**	0.058**	-0.062**	0.056**	-0.062**	0.051**	-0.043*	0.037*
	(0.021)	(0.018)	(0.021)	(0.018)	(0.02)	(0.02)	(0.019)	(0.017)
Family income	0.003	0.016***	0.003	0.015***	0.003	0.015***	0.003	0.012**
	(0.005)	(0.004)	(0.005)	(0.004)	(0.01)	(0.00)	(0.005)	(0.004)
Academic Background								
9th grade GPA	-0.022	0.120***	-0.022	0.120***	-0.02	0.101***	-0.009	0.064***
	(0.019)	(0.014)	(0.018)	(0.014)	(0.02)	(0.01)	(0.018)	(0.013)
9th grade math level	-0.008	0.023***	-0.008	0.024***	-0.01	0.017**	-0.003	0.014*
	(0.008)	(0.006)	(0.008)	(0.006)	(0.01)	(0.01)	(0.008)	(0.006)
10th grade math achievement test score	-0.009***	0.006***	-0.009***	0.006***	-0.008***	0.004**	-0.007***	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.00)	(0.00)	(0.002)	(0.002)
Transfer student	-0.132***	-0.078*	-0.130***	-0.081*	-0.126***	-0.075*	-0.079*	-0.030
	(0.033)	(0.034)	(0.033)	(0.034)	(0.03)	(0.03)	(0.031)	(0.032)
GED status	-0.313***	-0.044	-0.312***	-0.048	-0.298***	-0.035	-0.189***	0.013
	(0.048)	(0.041)	(0.048)	(0.041)	(0.05)	(0.04)	(0.046)	(0.039)
Inverse Mills Ratio	-2.153***	0.023	-2.139***	0.001	-2.117***	-0.037	-1.528***	0.123
	(0.286)	(0.199)	(0.286)	(0.197)	(0.28)	(0.20)	(0.265)	(0.191)
Enrolled in PS courses	-0.210***	-0.088***	-0.210***	-0.089***	-0.209***	-0.088***	-0.140***	-0.078***
	(0.024)	(0.017)	(0.024)	(0.017)	(0.02)	(0.02)	(0.023)	(0.016)

Table D.6.5, continued.

	Model 1-Background		Model 2-Course Offerings		Model 3-Course-Taking		Model 4-Post High School	
	Males	Females	Males	Females	Males	Females	Males	Females
School Measures								
School % receiving free/reduced lunch	-0.001	-0.002*	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.00)	(0.00)	(0.001)	(0.001)
School % minority	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.00)	(0.00)	(0.001)	(0.001)
Magnet school	-0.080**	-0.000	-0.079*	0.001	-0.077*	-0.001	-0.067*	-0.014
	(0.030)	(0.026)	(0.031)	(0.025)	(0.03)	(0.03)	(0.028)	(0.023)
Vocational School	0.068*	-0.041	0.075*	-0.032	0.068*	-0.033	0.054	-0.023
	(0.030)	(0.032)	(0.031)	(0.031)	(0.03)	(0.03)	(0.028)	(0.029)
District per-pupil expenditures	0.000**	-0.000	0.000**	-0.000	0.000**	0	0.000*	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	0.00	0.00	(0.000)	(0.000)
Urbanicity (ref: Urban)								
Suburban	0.120***	-0.005	0.118***	-0.002	0.115***	0.006	0.084***	0.001
	(0.028)	(0.021)	(0.028)	(0.021)	(0.03)	(0.02)	(0.024)	(0.020)
Rural	0.221***	0.009	0.228***	0.025	0.226***	0.035	0.157***	0.023
	(0.039)	(0.027)	(0.040)	(0.028)	-0.04	-0.029	(0.035)	(0.026)
# Courses offered by the school			-0.000	-0.000	0	0	0.000	-0.000
			(0.000)	(0.000)	0	0	(0.000)	(0.000)
School provided course catalog			0.038	0.027	0.045	0.028	0.052	0.049
			(0.043)	(0.036)	(0.04)	(0.04)	(0.037)	(0.033)
Local Labor Market Controls								
% County Service Workers	0.007	-0.008	0.007	-0.006	0.007	-0.006	0.008	-0.004
	(0.006)	(0.004)	(0.006)	(0.005)	(0.01)	(0.01)	(0.006)	(0.004)
% County Unemployed	0.003	0.005	0.003	0.005	0.002	0.006	-0.003	0.001
	(0.006)	(0.006)	(0.006)	(0.006)	(0.01)	(0.01)	(0.006)	(0.005)
Constant	3.872***	1.828***	3.772***	1.702***	3.731***	1.770***	3.551***	2.152***
	(0.244)	(0.156)	(0.247)	(0.160)	(0.25)	(0.16)	(0.234)	(0.158)
Males=3,900; Females=4120								

Note: All models include state fixed-effects; standard errors in parentheses.

*** p<0.001, ** p<0.01, * p<0.05

References

Adelman, Clifford. 2006. "The Toolbox Revisited: Paths to Degree Completion from High School through College." Washington, DC: U.S. Department of Education.

Ainsworth, James W., and Vincent J. Roscigno. 2005. "Stratification, School-Work Linkages and Vocational Education." *Social Forces* 84(1):257-84.

Autor, David H. and David Dorn. 2013. "The Growth of Low-Skill Service Jobs and the Polarization of the US Labor Market." *American Economic Review* 103(5):1553-1597.

Apple, Michael W. 2004. *Ideology and Curriculum*. New York: Routledge.

Arum, Richard. 2000. "Schools and Communities: Ecological and Institutional Dimensions." *Annual Review of Sociology* 26(1):395:418.

Arum, Richard, and Yossi Shavit. 1995. "Secondary Vocational Education and the Transition from School to Work." *Sociology of Education* 68(3):187-204.

Bartlett, Lesley, Marla Frederick, Thaddeus Gulbrandsen, and Enrique Murillo. 2002. "The Marketization of Education: Public Schools for Private Ends." *Anthropology & Education Quarterly* 33(1):5-29.

Bauder, Harald. 2001. "Culture in the Labor Market: Segmentation Theory and Perspectives of Place." *Progress in Human Geography* 25(1):37-52.

Bergmann, Barbara R. 2010. "Sex segregation in the Blue-collar Occupations: Women's Choices or Unremedied Discrimination? Comment on England." *Gender & Society* 25(1):88-93.

Bergmann, Barbara R. 2011. "Sex Segregation in the Blue-collar Occupations: Women's Choices or Unremedied Discrimination?: Comment on England." *Gender & Society* 25(1):88-93.

Bielby, William T., and James N. Baron. 1986. "Men and Women at Work: Sex Segregation and Statistical Discrimination." *American Journal of Sociology* 91(4):759-99.

Bishop, John. 1989. "Occupational training in high school: When does it pay off?" *Economics of Education Review* 8(1):1-15.

Bishop, John H., and Ferran Mane. 2004. "The impacts of career-technical education on high school labor market success." *Economics of Education Review* 23(4):381-402.

Blauner, Robert. 1964. *Alienation and Freedom: The Factory Worker and His Industry*. Chicago: The University of Chicago Press.

Bose, Christine E. and Rachel Bridges Whaley. "Sex Segregation in the US Labor Force." Pp. 228-248 in *Gender Mosaics: Social Perspectives (Original Readings)*, edited by Dana Vannoy and Beth Hass. London: Oxford University Press.

Bowles, Samuel, and Herbert Gintis. 1976. *Schooling in Capitalist America: Educational Reform and the Contradictions of Economic Life*. New York: Basic Books.

Bozick, Robert. 2009. "Job Opportunities, Economic Resources, and the Postsecondary Destinations of American Youth." *Demography* 46(3):493-512.

Bozick, Robert and Stefanie DeLuca. "Not Making the Transition to College: School, Work, and Opportunities in the Lives of American Youth." *Social Science Research* 40(4):1249-1262.

Bozick, Robert, and Benjamin Dalton. 2013. "Balancing Career and Technical Education With Academic Coursework: The Consequences for Mathematics Achievement in High School." *Educational Evaluation and Policy Analysis* 35(2):123-38.

Bryk, Anthony S., Valerie E. Lee, and Peter B. Holland. 1993. *Catholic Schools and the Common Good*. Cambridge, MA: Harvard University Press.

Carnevale, Anthony P., and Donna M. Desrochers. 2002. *The Missing Middle: Aligning Education and the Knowledge Economy*. Washington, DC: U.S. Department of Education Office of Vocational and Adult Education.

Carnevale, Anthony P., Nicole Smith, James R. Stone III, Pradeep Kotamraju, Bruce Steuernagel, and Kimberly A. Green. 2011. *Career Clusters: Forecasting Demand for High School Throught College Jobs, 2008-2018*. Washington, DC: Georgetown. University Center on Education and the Workforce. Retrieved December 6, 2014. (https://cew.georgetown.edu/report/career-clusters/).

Cha, Youngjoo and Kim A. Weeden. "Overwork and Slow Convergence in the Gender Gap in Wages." *American Sociological Review* 79(3):457-484.

Chetty, Raj, Nathaniel Hendren, Patrick Kline, and Emmanuel Saez. 2014. "Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States." in *NBER Working Paper No. 19843*. Cambridge, MA: National Bureau of Economic Research.

Coleman, James S., and Thomas Hoffer. 1987. *Public and Private High Schools: The Impact of Communities*. New York, NY: Basic Books.

Connell, Dana S. 1990. "Effective Sexual Harrassment Policies: Unexpected Lessons from Jacksonville Shipyards." *Employee Relations Law Journal* 17(2):191-206.

Cotter, David A., Joann Defiore, Joan M. Hermsen, Brenda Marsteller Kowalewski, and Reeve Vanneman. 1998. "The Demand for Female Labor." *American Journal of Sociology* 103(6):1673-1712.

Cotter, David A. Joan M. Hermsen, and Reeve Vanneman. 2004. *Gender Inequality at Work*. New York: Russell Sage Foundation.

Deaux, Kay, and Joseph C Ullman. 1983. *Women of Steel: Female Blue-Collar Workers in the Basic Steel Industry*: Praeger Publishers.

DiPrete, Thomas A, and Claudia Buchmann. 2006. "Gender-Specific Trends in the Value of Education and the Emerging Gender Gap in College Completion." *Demography* 43(1):1-24.

DiPrete, Thomas A., and Claudia Buchmann. 2013. *The Rise of Women: The Growing Gender Gap in Education and What It Means for American Schools*. New York: Russell Sage Foundation.

Domina, Thurston. 2006. "Brain Drain and Brain Gain: Rising Educational Segregation in the United States, 1940–2000." *City & Community* 5(4):387-407.

Fernandez, Roberto M. 2001. "Skill-Biased Technological Change and Wage Inequality: Evidence from a Plant Retooling." *American Journal of Sociology* 107(2):273-320.

Fischer, Claude S., and Michael Hout. 2006. *Century of Difference: How America Changed in the Last One Hundred Years*: Russell Sage Foundation.

Gambetta, Diego. 1987. *Were They Pushed or Did They Jump?: Individual Decision Mechanisms in Education*. Cambridge: Cambridge University Press.

Gamoran, Adam and Eileen C. Hannigan. 2000. "Algebra for Everyone? Benefits of College-Preparatory Mathematics for Students with Diverse Abilities in Early Secondary School." *Educational Evaluation and Policy Analysis* 22(3):241-254.

Gauchat, Gordon, Maura Kelly, and Michael Wallace. 2012. "Occupational Gender Segregation, Globalization, and Gender Earnings Inequality in U.S. Metropolitan Areas." *Gender & Society* 26(5):718-747.

Gelberg, Denise. 1997. *The Business of Reforming American School*s. New York: SUNY Press.

Glass, Jennifer. 1990. "The Impact of Occupational Segregation on Working Conditions." *Social Forces* 68(3):779-96.

Goldin, Claudia Dale, and Lawrence F. Katz. 2009. *The Race Between Education and Technology*. Boston: Harvard University Press.

Grubb, Norton W. 1999. "Learning and Earning in the Middle: The Economic Benefits of Sub-Baccalaureate Education." New York: Columbia University Community College Research Center.

Hannan, Damian, David Raffe, and Emer Smyth. 1996. "Cross-National Research on School to Work Transitions: An Analytical Framework." Paris: OECD.

Hanson, Susan, Tara Kominiak, and Scott Carlin. 1997. "Assessing the Impact of Location on Women's Labor Market Outcomes: A Methodological Exploration." *Geographical Analysis* 29(4):281-97.

Hanson, Susan, and Geraldine Pratt. 1992. "Dynamic Dependencies: A Geographic Investigation of Local Labor Markets." *Economic Geography* 68(4):373-405.

Hanushek, Eric A., Ludger Woessmann, and Lei Zhang. 2011. "General Education, Vocational Education, and Labor-Market Outcomes Over the Life-Cycle," in *NBER Working Paper No. 17504*. Cambridge, MA: National Bureau of Economic Research.

Heberle, Rudolf. 1948. "Social Consequences of the Industrialization of Southern Cities." *Social Forces* 27(1):29-37.

Herod, Andrew. 2001. *Labor Geographies: Workers and the Landscapes of Capitalism*. New York: Guilford Press.

Hout, Michael. 2012. "Social and Economic Returns to College Education in the United States." *Annual Review of Sociology* 38(1):379-400.

Institute of Medicine, National Academy of Sciences, and National Academy of Engineering. 2007. *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*. Washington, DC: The National Academies Press.

Jacob, Brian A. 2002. "Where the Boys Aren't: Non-Cognitive Skills, Returns to School and the Gender Gap in Higher Education." *Economics of Education Review* 21(6):589-98.

Kalleberg, Arne L. 2011. *Good Jobs, Bad Jobs: The Rise of Polarized and Precarious Employment Systems in the United States, 1970s to 2000s*. New York: Russell Sage Foundation.

Kerckhoff, Alan C. 1995. "Institutional Arrangements and Stratification Processes in Industrial Societies." *Annual Review of Sociology* 21:323-47.

Klugman, Joshua. 2013. "The Advanced Placement Arms Race and the Reproduction of Educational Inequality." *Teachers College Record* 115(5):1-34.

Kornblum, William. 1974. *Blue Collar Community*. Chicago: University of Chicago Press.

Lareau, Annette. 1987. "Social Class Differences in Family-School Relationships: The Importance of Cultural Capital." *Sociology of Education* 60(2):73-85.

Lee, Valerie E., Julia B. Smith, and Robert G. Croninger. 1997. "How High School Organization Influences the Equitable Distribution of Learning in Mathematics and Science." *Sociology of Education* 70(2):128-50.

Legewie, Joscha, and Thomas A. DiPrete. 2014. "The High School Environment and the Gender Gap in Science and Engineering." *Sociology of Education* 87(4):259-80.

Leggett, John C. 1968. *Class, Race, and Labor: Working-Class Consciousness in Detroit*. London: Oxford University Press.

Lewis, Ronald L. 1987. *Black Coal Miners in America: Race, Class, and Community Conflict, 1780-1980*. Lexington, KY: University Press of Kentucky.

Lucas, Samual R. 2001. "Effectively Maintained Inequality: Education Transitions, Track Mobility, and Social Background Effects." *American Journal of Sociology* 106(6):1642-90.

Lynd, Robert Staughton, and Helen Merrell Lynd. 1929. *Middletown: A Study in American Culture*. New York: Harcourt, Brace.

Massey, Doreen B. 1984. *Spatial Divisions of Labour: Social Structures and the Geography of Production*. London: Macmillan

McCall, Leslie. 1998. "Spatial Routes to Gender Wage (In) equality: Regional Restructuring and Wage Differentials by Gender and Education*." *Economic Geography* 74(4):379-404.

—. 2000. "Gender and the New Inequality: Explaining the College/Non-College Wage Gap." *American Sociological Review* 65(2):234-55.

—. 2001. *Complex Inequality: Gender, Class and Race in the New Economy*. New York: Routledge.

McDonough, Patricia M. 1997. *Choosing Colleges: How Social Class and Schools Structure Opportunity*. Albany, NY: State University of New York Press.

Mickelson, Roslyn Arlyn. 1999. "International Business Machinations: A Case study of Corporate Involvement in Local Educational Reform." *The Teachers College Record* 100(3):476-512.

Mood, Carina. 2010. "Logistic Regression: Why We Cannot Do What We Think We Can Do, and What We Can Do About It." *European Sociological Review* 26(1):67-82.

Moretti, Enrico. 2013. *The New Geography of Jobs*. Boston: Mariner Books.

Morris, Edward W. 2008. "'Rednecks', 'Rutters', and 'Rithmetic: Social Class, Masculinity, and Schooling in a Rural Context." *Gender & Society* 22(6):728:751.

—. 2012. *Learning the Hard Way: Masculinity, Place, and the Gender Gap in Education*. New Brunswick, NJ: Rutgers University Press.

National Commission on Excellence in Education. 1983. *A Nation at Risk: The Imperative for Educational Reform.* Edited by David P. Gardner. Washington, DC: US Department of Education.

O'Farrell, Brigid. 1999. "Women in Blue Collar and Related Occupations at the End of the Millennium." *The Quarterly Review of Economics and Finance* 39(5):699-722.

Oakes, Jeannie. 2005. *Keeping Track: How Schools Structure Inequality*. Second Edition. New Haven, CT: Yale University Press.

Oakes, Jeannie, and Gretchen Guiton. 1995. "Matchmaking: The Dynamics of High School Tracking Decisions." *American Educational Research Journal* 32(1):3-33.

Padavic, Irene. 1992. "White-Collar Work Values And Women's Interest In Blue-Collar Jobs." *Gender & Society* 6(2):215-30.

Powell, Arthur G., Eleanor Farrar, and David K. Cohen. 1985. *The Shopping Mall High School: Winners and Losers in the Educational Marketplace*. Boston: Houghton Mifflin.

Primo, David M., Matthew L. Jacobsmeier, and Jeffrey Milyo. 2007. "Estimating the Impact of State Policies and Institutions with Mixed-Level Data." *State Politics & Policy Quarterly* 7(4):446-59.

Ray, Carol Axtell, and Roslyn Arlin Mickelson. 1990. "Corporate Leaders, Resistant Youth, and School Reform in Sunbelt City: The Political Economy of Education." *Social Problems* 37(2):178-90.

Reskin, Barbara F, and Irene Padavic. 1988. "Supervisors as Gatekeepers: Male Supervisors' Response to Women's Integration in Plant Jobs." *Social Problems* 35(5):536-50.

Riegle-Crumb, Catherine, and Eric Grodsky. 2010. "Racial-Ethnic Differences at the Intersection of Math Course-taking and Achievement." *Sociology of Education* 83(3):248.

Riegle-Crumb, Catherine, and Chelsea Moore. 2014. "The Gender Gap in High School Physics: Considering the Context of Local Communities." *Social Science Quarterly* 95(1):253-68.

Roscigno, Vincent J. 1995. "The Social Embeddedness of Racial Educational Inequality: The Black-White Gap and the Impact of Racial and Local Political-Economic Contexts." *Research in Social Stratification and Mobility* 14:135-66.

Roscigno, Vincent J., Lisette M. Garcia, and Donna Bobbitt-Zeher. 2007. "Social Closure and Processes of Race/Sex Employment Discrimination." *The ANNALS of the American Academy of Political and Social Science* 609(1):16-48.

Roscigno, Vincent J., Donald Tomaskovic-Devey, and Martha Crowley. 2006. "Education and the Inequalities of Place." *Social Forces* 84(4):2121-45.

Rosen, Ellen Israel. 1987. *Bitter Choices: Blue-Collar Women In and Out of Work*. Chicago: The University of Chicago Press.

Rumberger, Russell W, and Thomas N Daymont. 1984. "The Economic Value of Academic and Vocational Training Acquired in High School." Pp. 152-192 in *Youth and the Labor Market*, edited by M. Borus. Kalamazoo: WE Upjohn Institute for Employment Research.

Rury, John L. 1991. *Education and Women's Work: Female Schooling and the Division of Labor in Urban America, 1870-1930*. Albany, NY: State University of New York Press.

Shavit, Yossi, and Walter Muller. 2000. "Vocational Secondary Education." *European Societies* 2(1):29-50.

Shea, Christine Mary, Ernest Kahane, and Peter Andre Sola. 1990. *The New Servants of Power: A Critique of the 1980s School Reform Movement*. New York: Praeger Publishers.

Stone, James R., Corinne Alfeld, and Donna Pearson. 2008. "Rigor and Relevance: Enhancing High School Students' Math Skills Through Career and Technical Education." *American Educational Research Journal* 45(3):767-95.

Sum, Andrew, Ishwar Khatiwada, Joseph McLaughlin, and Sheila Palma. 2010. "The Great Recession of 2008-2009 and the Blue-Collar Depression." *Challenge* 53(4):6-24.

Symonds, William C., Robert Schwartz, and Ronald F. Ferguson. 2011. "Pathways to Prosperity: Meeting the Challenge of Preparing Young Americans for the 21st Century.". Cambridge, MA: Pathways to Prosperity Project, Harvard University Graduate School of Education. http://dash.harvard.edu/handle/1/4740480.

Tomaskovic-Devey, Donald. 1987. "Labor Markets, Industrial Structure, and Poverty: A Theoretical Discussion and Empirical Example." *Rural Sociology* 52(1):56-74.

—. 1993. *Gender and Racial Inequality at Work: The Sources and Consequences of Job Segregation*. Ithaca, NY: Cornell University Press.

Tomaskovic-Devey, Don, and Sheryl Skaggs. 2002. "Sex Segregation, Labor Process Organization, and Gender Earnings Inequality." *American Journal of Sociology* 108(1):102-28.

Tomaskovic-Devey, Don, and Sheryl Skaggs. 2002. "Sex Segregation, Labor Process Organization, and Gender Earnings Inequality." *American Journal of Sociology* 108(1):102-28.

Walkowitz, Daniel J. 1978. *Worker City, Company Town: Iron and Cotton-Worker Protest in Troy and Cohoes, New York, 1855-84*: Univ of Illinois Press.

Walshok, Mary L. 1981. *Blue Collar Women: Pioneers on the Male Frontier*. Garden City, NY: Anchor Books.

Walters, Pamela Barnhouse. 1984. "Occupational and Labor Market Effects on Secondary and Postsecondary Educational Expansion in the United States: 1922 to 1979." *American Sociological Review* 49(5):659-71.

Warren, John Robert, and Melanie R. Edwards. 2005. "High School Exit Examinations and High School Completion: Evidence From the Early 1990s." *Educational Evaluation and Policy Analysis* 27(1):53-74.

Werum, Regina. 2002. "Matching Youth and Jobs? Gender Dynamics in New Deal Job Training Programs." *Social Forces* 81(2):473-503.

Wilson, William J. 1987. *Truly Disadvantaged: The Inner City, the Underclass, and Public Policy*. Chicago: University of Chicago Press.